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THE MALMROS-HEDVALL LESIONS OF PULMONARY TUBERCULOSIS IN ADULTS*

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THE recent decline in tuberculosis mortality and morbidity and the consequent decrease in tuberculous infection has brought opportunities for studying the beginnings of tuberculosis in the human body that were never before present.

Large numbers of people reach adult life without infection, become primarily infected and eventually develop the adult or re-infection type of pulmonary tuberculosis. This, today, is occurring under our very eyes with the conditions for observation almost as well controlled as they would be in an animal experiment.

The adult or re-infection type of pulmonary tuberculosis is responsible for most of the cases of chronic invalidism or death that result from infection with tubercle bacilli. Only a small percentage of all persons who acquire a primary infection develop this serious form of clinical disease, but when the re-infection type of pulmonary tuberculosis does result, it is always a matter of serious concern and it is extremely important, both from the individual and the public health standpoint, that the diagnosis be made as early as possible.

The presence of this type of the disease may now be determined in certain cases, by the use of the newer methods, long before the patient shows any outward indication of illness or has even a premonition that his health is not perfect.

This has been demonstrated by careful continued studies of large groups of young people who have reached adult life without having been previously infected with tubercle bacilli. Such persons readily acquire a primary infection when exposed to tuberculosis and later a certain proportion of them acquire serious clinical disease in the form of re-infection type of pulmonary tuberculosis.

Opportunities for infection are greater for those studying medicine or nursing, and especially for those who come in close contact with tuberculous patients. A much larger percentage of such students acquire infection. Consequently, a relatively large number of cases of serious progressive pulmonary tuberculosis may be found in such groups. The occurrence of such cases of clinical disease may even be anticipated under such circumstances, and if the entire group is under careful and continuous observation the very earliest manifestations of the illness may be detected.

One interesting study of such a group is that recently reported by Malmros and Hedvall.*

They made systematic examinations of 3,336 students at the University of Lund in Sweden and found 133 cases of definite active tuberculosis.

Their investigations were begun in 1930, and included tuberculin testing, fluoroscopy, the taking of x-rays, and the making of sedimentation tests. Even in the tuberculin negative cases, x-rays were taken as a rule. All cases were checked at least once a year. The cases which became tuberculin positive during the period of observation were checked especially carefully and x-rays were taken of them from two to four times a year, for the following two to four years, even if at first no changes could be found in the lungs. This work could be carried on in this way be-

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*Studien über die Entstehung und Entwicklung der Lungentuberkulose. Published in 1938, Johann Ambrosius Barth, Leipsig.

cause of the fact that special funds were available for x-rays and it was possible to take an unusually large number. In all, more than five thousand were taken, including routine and special films. As a result, a valuable and readily accessible collection was secured for permanent filing and study. In many of the series of x-rays in which at first the findings were normal, Malmros and Hedvall were able to study the beginnings and the later development of the re-infection type of pulmonary tuberculosis.

As already mentioned, 133 cases of definite active cases of adult type tuberculosis were found among the 3,336 students and pupil nurses examined, which makes about 4 per cent of the entire number. Of the 133 cases, sixty-nine were medical students and twenty-four were nurses.

For the purpose of studying the development of tuberculosis in adults, the entire number of cases studied was divided into three groups:

Group I (forty-seven cases).—In this group, those cases of adult type pulmonary tuberculosis were included, which at the beginning of the investigation showed definite negative tuberculin reactions and in which the beginning of tuberculosis and in many cases the entire development into open tuberculosis could be studied.

Group II (forty-three cases).—In this group were included the cases in which the tuberculin test was already positive when the study was begun, but in which a normal chest x-ray was available before tuberculosis developed in the lungs.

Group III (forty-three cases).—In this group, finally, are found the remaining cases, those in which tuberculous infection had already been indicated by a positive tuberculin reaction and by some evidence of tuberculosis in an x-ray of the chest previous to the time when active disease developed.

Group I

Group I is naturally the most important of the three groups since by a study of the forty-seven cases included in it, one can really learn to recognize the changes which occur in primary tuberculous infection and also the later development of the adult type of tuberculosis. Six hundred and four, or approximately 18 per cent of the 3,294 students given the tuberculin test, at first showed negative reactions. Of these 604, the number that changed from negative to positive during the period of observation (1930-1938) was 151, or 25 per cent. Of those whose susceptibility to tuberculin changed in this manner, 104, or about 69 per cent, became positive reactors without ever developing any other signs or symptoms of tuberculosis than the positive tuberculin reaction itself. In the other forty-seven cases (31 per cent) tuberculous changes sooner or later were demonstrated in the lungs. They comprised Group I.

All of these forty-seven patients had had a negative tuberculin reaction and a negative x-ray when first examined. The positive reaction occurred on an average nine and a half months after there had been a negative one; in half the cases in four months and in two cases in two weeks.

Of the forty-seven patients, nineteen developed definite childhood type (primary infection type) tuberculosis of the lungs with the usual primary complex. Six others developed pleurisy only, without a primary complex. Nine others developed various conditions which the authors considered indications of a primary infection including erythema nodosum, phlyctenular conjunctivitis, gland tuberculosis and miliary tuberculosis. Of these thirty-two patients developing primary type tuberculosis, nineteen recovered without further illness during the period of observation, the patient with miliary tuberculosis died, two developed peritoneal tuberculosis, one a marked hilus infiltration, and five of the thirty-two later developed typical re-infection or adult type tuberculosis, one of whom died. Of the entire group of thirty-two patients ill with primary type tuberculosis, twenty-one were hospitalized, and six required pneumothorax treatment.

As will be noted in this group of thirty-two patients who had evident primary tuberculosis, there were five who later developed the re-infection or adult type of pulmonary tuberculosis. Besides them there were fourteen others who developed the adult or re-infection type without having shown any previous evidence of the disease except changing from a negative to a positive reaction.

Altogether nineteen of the forty-seven cases of clinical tuberculosis eventually developed adult type tuberculosis. One died, and five required pneumothorax treatment.

In the cases of primary pulmonary infection in

adults above mentioned, there had been in the majority of cases some general symptoms such as fever, pain in the side and cough. The blood sedimentation rate was usually increased.

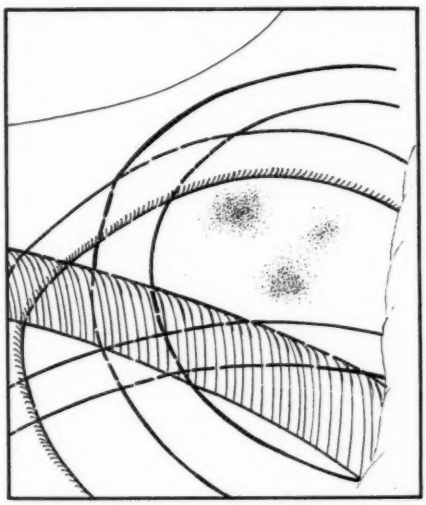

Fig. 1. Subprimary initial lesion. (Diagrammatic sketch by James Wing.)

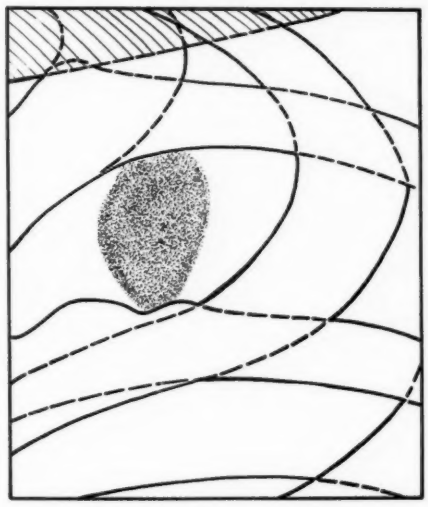

Fig. 2. Early infiltrate. (Diagrammatic sketch by James Wing.)

On the other hand, in the majority of the cases in which the re-infection type of tuberculosis of the lungs developed later, there were *no subjective symptoms of illness* such as had been noted in connection with the primary infection. *Moreover the sedimentation test was normal in most of these cases.*

The re-infection or adult type of pulmonary tuberculosis in those primarily infected in adult life usually began with a lesion called by Malmros and Hedvall a "subprimary initial lesion" which often took the form of single or multiple cloudy spots or flecks on the x-ray film. These in the majority of cases were located in the supraclavicular region or in the first interspace or simultaneously at both places. No special preference for a location below the clavicle could be observed. Assman's teaching that the first lesions of the adult type were usually located below the clavicle was not supported by these findings.

In individual cases an appearance was noted suggesting infiltration, near the area of flecks which the authors designated as "the early infiltrate." Extensive hematogenous dissemination as the first sign of disease was not seen in any case. These "early infiltrate lesions" were denser and their edges more sharply defined than was the case with the "subprimary initial lesions."

These two lesions, the "subprimary initial lesion" and the "early infiltrate," were the first evidences seen of the adult or re-infection type of pulmonary tuberculosis.

Group II

The beginning of the adult or re-infection type of pulmonary tuberculosis was also observed in thirty-seven individuals who at the beginning of the investigation had definite tuberculin reactions but normal x-ray pictures. Six others developed pleurisy and two hilus gland tuberculosis.

The incipient lung tuberculosis in these cases developed in the following forms: in twenty-eight cases larger or smaller "subprimary initial lesions" were demonstrated in the form of somewhat irregular spots or flecks, often fairly sharply defined, but more frequently with edges that faded out and with a tendency to confluence. In one case an isolated "early infiltrate" was present and in one case an isolated cavity in the apex was found.

In this group also, the initial lesions as a rule were supraclavicular or in the first interspace or in both places simultaneously. Here, too, there was found no special tendency for localization in the subclavicular area. In most cases the lesions

showed a progressive tendency in that the process advanced from the apex downward or spread to the opposite lung. In no less than seventeen of the twenty-eight cases showing "subprimary initial lesions," a serious progressive tendency developed later as a result of which cavities developed in ten cases. One of the patients died exactly a year and a half after the "initial lesion" was demonstrated. In two cases the first demonstration of any change from the initial lesion was the appearance of cavities on account of which pneumothorax had to be instituted. The condition in four cases was unstable or slowly progressive. Thirty-six of the forty-three patients in this group were hospitalized; twenty-one received pneumothorax treatment; two died.

The isolated instances of "early infiltrate," which has been shown to be a relatively unusual form of incipient pulmonary tuberculosis of the adult or re-infection type, in the material investigated were located in different sections of the lung; in certain cases they softened and gave rise to cavities, but in others they gradually disappeared by resolution.

A fundamental distinction between these various forms of incipient pulmonary tuberculosis can hardly be made. The designation "early infiltrate" may be used in those cases where the process begins as a larger well limited density.

Extensive hematogenic spreads could be demonstrated by the x-ray in the series only in individual cases and in acute miliary tuberculosis.

Whether the incipient pulmonary tuberculosis began as the smaller flecks ("subprimary initial lesion") or as an "infiltrate" without accompanying areas of flecks, there were in general *no subjective symptoms* nor *any increase of blood sedimentation rate.*

There were forty-three patients in this group in whom definite new lesions of adult type tuberculosis developed. Of these, thirty-seven were hospitalized, eighteen received pneumothorax treatment and three died.

Group III

In the study of these cases, which had all shown some roentgenologic changes during their investigation, there were frequently indications that they had recently developed in new areas the "subprimary initial lesion" which we have described as the commonest form of beginning pulmonary tuberculosis of the adult type, especially when spreading occurred or when new lesions appeared in the opposite and previously normal lung. Such fresh lesions were similar to those already described.

The initial lesion may naturally remain stationary for a long time or even show retrogression. Often there remain traces in the form of sharply contoured, opaque, small flecks, which for some time have been known as Simon's lesions. Exceptionally, the tuberculosis process may light up again from such foci. In some cases there may be little change in a small lesion for several years, after which rapid extension of the disease may occur.

It is of the greatest practical importance not to overlook these early "subprimary initial lesions" or underestimate their importance. They should be anticipated and especially looked for in exposed persons. The lessening cost of chest x-rays will soon make it possible for physicians to have films taken at frequent intervals in all such cases. These should ordinarily be submitted to competent roentgenologists for interpretation. Since evidences of previous primary infection cannot always be demonstrated, it is as Malmros and Hedvall have stated—sometimes impossible to determine positively whether the lesions found are due to primary infection or re-infection.

No pulmonary lesions in adults whether thought to be due to primary infection or to re-infection should be treated casually on the assumption that primary cases have a benign prognosis. The lesions that are evidently due to re-infection are especially uncertain in their course and may cause serious and extensive disease.

The following cases taken from Malmros and Hedvall's report showed the initial lesions of the re-infection type of pulmonary tuberculosis. To them we have added a series of cases observed at Nopeming or in the Duluth hospitals.

Cases in Sweden

Group I

Case 34—Medical student, born 1909.

Mantoux test (1 mg.) negative January 1, 1934, and x-ray of chest negative. Von Pirquet test positive September 21, 1934. Sedimentation test twenty minutes. The patient had recently felt chilly. X-ray showed ill-defined cloudy flecks in the left supraclavicular area. Hilus negative. In a radiograph taken February 21, 1935, the flecks were more marked. The patient was treated at home. At first there was retrogression of the lesion. By March, 1936, there was slight progression on the left side in the supraclavicular area. Ex-

amination of gastric contents showed the presence of tubercle bacilli. For a year the condition was stationary, then further progression occurred on the left in the first interspace, while the changes in the apex were less evident. Now thread-like shadows and flecks appeared which became confluent. The x-ray taken December 12, 1937, showed the flecks for the most part softened into an infiltration in which a central cavity appeared. Sanatorium treatment was given. The patient now feels entirely well.

In this case the "subprimary initial lesions" appeared in the left apex without any demonstrable primary complex, eight months after a negative tuberculin reaction. The case had been under observation four years.

Case 36.—Pupil nurse, born 1914.

Mantoux test negative on June 6, 1934, and x-ray of chest also negative. On February 21, 1938, the Mantoux test was positive. The patient had no symptoms but an x-ray showed apical changes on both sides above the clavicle and in the first interspace, consisting of numerous small, ill-defined flecks. In addition, on the left side there was a cavity (10 x 10 mm.) which showed much larger on the x-ray taken on May 5, 1936. Accordingly the left lung was collapsed by pneumothorax. Later there was extension of the lesions on the right side which necessitated sanatorium treatment and pneumothorax treatment on the right side. Tuberculosis of the peritoneum developed later.

The "subprimary initial lesions" with cavitation developed in this case in the apex and upper lung areas about a year and a half after a negative tuberculin test. About ten months later, peritoneal tuberculosis developed. There was no demonstrable primary complex. The case was under observation three and one-fourth years.

Nopeming Cases

Group I

Case 18859 (St. Luke's No. 11701). F., aged nineteen (1936), student nurse. No tuberculosis in family. Mantoux test negative in 1936 and 1937. Stereoscopic lung radiograph June 4, 1936—negative. Lung radiograph April 28, 1937—negative. The patient worked on tuberculosis service in January and February, 1938.

Radiograph taken January 19, 1938, revealed a small area in the right apex at the junction of the upper margins of the clavicle and first rib. This was a spot or fleck about 1 cm. in diameter together with delicate streaks and mottled areas. Stereoscopic radiograph January 20, 1938, revealed the lesion more clearly. The patient had no symptoms. Radiograph taken October 5, 1938, rather unsatisfactory but was interpreted as negative.

Radiograph May 26, 1939, revealed an infiltration extending downward from the original lesion into the first and second interspace, consisting of soft streaks and mottled areas. The patient was asymptomatic. Radiograph June 3, 1939, showed no change. Radiograph July 7, 1939—slight change. The patient graduated in June, 1939, and worked until January, 1940, when she had hemorrhages.

Stereoscopic radiographs January 9, 1940, revealed slight contraction of the lesion with a hazy infiltration at the second right interspace. The patient was hospitalized and pneumothorax was induced on the right side. Tubercle bacilli have not been demonstrated.

Group II

Case 1625E (986 O.P.).—F., aged twenty-three (1932), graduate nurse employed at the sanatorium. Mantoux test was positive at the beginning of employment. Radiographs were taken at this time. Those taken on December 19, 1929, October 15, 1931, and November 25, 1932, were negative except for a calcified Ghon tubercle near the right cardiophrenic angle.

Routine radiograph November 28, 1933, revealed a minimal involvement in the left lung consisting of "flecks" at the level of the second rib and second interspace. The patient had no symptoms. She remained on duty. Radiographs taken July 8, 1934, and December 30, 1934, showed contraction of the lesion which now appeared as fine streaking at the second interspace. In April, 1935, the patient complained of a slight dry cough and weight loss.

On April 13, 1935, radiograph now revealed an increase in the lesion consisting of a cloudy infiltration in the first and second interspaces. The patient was hospitalized and rapidly lost symptoms. She was unable to raise sputum. Radiographs taken May 16, 1935, and June 1, 1935, showed rapid clearing. The patient was allowed to go home for rest and returned to duty September 1, 1935.

On October 3, 1935, radiograph revealed a fairly fibroid lesion as residue. Frequent radiographs to date have shown slow contraction of the lesion.

Radiograph taken January 1, 1940, shows the present status of the lesion, which does not appear to be active.

Group III

Case 2286.—M., student, aged twenty (1933).

The mother had tuberculosis with positive sputum. The patient was in excellent health, and played on college football, basketball and hockey teams.

Radiograph taken April 9, 1933, revealed calcified glands and a Ghon tubercle in the left lung. In the first and second interspaces on the right there were scattered "fleck-like" areas. The patient had no symptoms but was reëxamined May 7, 1933, and June 5, 1933.

On June 5, 1933, radiograph showed conglomeration of the mottling with a spot of increased density 1.5 cm. in diameter at the second right interspace. The left lung was unchanged. The patient was advised to enter a sanatorium but refused and continued school work. There were no symptoms. He did not return for further examinations until December.

Radiograph taken December 17, 1933, revealed increase in the lesion with a cavity at the second right interspace 1.5 cm. in diameter. The patient complained

of a cold, but refused treatment. Radiograph January 17, 1934, showed very little change

The patient's condition was again checked by x-ray March 3, 1934, which now revealed a marked atelectatic or pneumonic area involving the lower half of the upper lobe. Cavity was patent. The patient had very slight symptoms. Sputum was positive.

Pneumothorax was induced March 17, 1933, with good collapse. The patient was discharged with pneumothorax June 30, 1934. The lung was reëxpanded in November, 1936. The patient's last check-up, August 21, 1938, showed a fibroid and calcified area in the region of the original disease, apparently not active. Recent report (1940) is that he is in excellent health.

THE VOLLMER PATCH TEST AND THE MANTOUX TEST

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IN 1937, Vollmer and Goldberger[9] first reported on the patch test used in this survey. In the 209 cases they tested, the patch and Pirquet tests were in conformity in 89 per cent. No Mantoux tests were done. In 15 cases the patch was positive and the Pirquet negative, and in 7 the reverse was true.

Taylor[7] tested a group of nurses, medical, law, and engineering students using the Vollmer patch and 0.1 mg. O.T. Mantoux tests. Of the 744 tested, 511 were negative to both tests, 191 positive to both, 27 positive to the patch test and negative to the Mantoux, and 15 negative to the patch test and positive to the Mantoux. He concluded that the patch test was as effective as the Mantoux with 0.1 mg. O.T.

In 880 tests on school children, Peck and Wegman[5] were able to obtain only ninety-four positive patch tests on the 319 individuals who had reacted to Mantoux tests done with first and second strengths purified protein derivative (P.P.D.).

Weiner and Neustadt[11] using a different approach gave Mantoux tests with 1:1,000 O.T. only to those who reacted negatively to either or both the patch and Pirquet tests. Only 3 of 60 reacting negatively to the patch and Pirquet tests reacted to the Mantoux. Of the 10 positive to the patch only, 7 reacted to the Mantoux. And of the 3 positive to the Pirquet only, one reacted to the Mantoux.

Vollmer and Goldberger[10] gave patch tests and Mantoux tests with 0.1 mg. O.T. simultaneously to 417 children on a general pediatric service. In this group 28 were positive to both tests and 385 negative to both tests. The tests disagreed or were questionable in only 4 cases.

Court[1] reported 100 per cent correlation between the Mantoux with 0.1 mg. O.T. and the patch test in 110 children, but Mantoux tests were read as negative if the induration was less than 10 mm. in diameter.

In testing 91 tuberculous children and 5 adults at a sanatorium, Steward[6] observed 90 reactions to both the patch and 0.1 mg. O.T. Mantoux, 6 reactions to the patch test alone, and none to the Mantoux test alone.

Of 536 children tested by Hart,[2] 436 had negative reactions to the Vollmer test patch and a Mantoux test with 0.01 mg. O.T., and 97 had a positive test to both. In only 3 instances was there disagreement.

Hughes[3] found that of 78 children positive to the Mantoux with first strength P.P.D., all were positive to the patch test. And of 22 positive only to second strength P.P.D., 11 had a positive patch test.

Of 712 children tested by Pearse, Fried, and Glover,[4] 492 were negative to the Mantoux test using first and second strengths P.P.D. and the patch test, 35 were positive to both, 67 were positive to the patch test alone, and 21 to the Mantoux test alone. In this study the patch test gave 7 per cent more positives than the Mantoux.

All investigators agree that the patch test has certain definite advantages in that it is painless, involves no instruments or sterilization, and never leads to a severe local or general reaction. Furthermore, the test material keeps its potency for months.

During the first part of April, 1940, Mantoux

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tests and tuberculin patch tests (Vollmer) were given simultaneously to approximately 300 students, teachers, and employes of the schools at Stewartville, Minnesota. Although the number of tests here reported is too small for any definite conclusions to be reached, such experience may be of value when added to that of other investigators.

For the Mantoux tests, 0.1 c.c. of 1:1,000 O.T. was injected intracutaneously on the anterior surface of the right forearm. The tuberculin was obtained from the Division of Preventable Diseases, Minnesota Department of Health.

The patch tests were applied to the right or left of the spine in the scapular region after the skin had been cleansed with acetone. The patch test material was purchased on the open market and was manufactured by the Lederle Co.

The Mantoux tests were read at the end of 48 hours and the patches were removed at that time. The patch tests were read at the end of another 72 hours rather than 48 hours because of an intervening Sunday, and it is possible some of the weaker reactions may have faded over this time. X-ray plates of all reactors were made at the Mayo Clinic, Rochester.

As is evident from Table I, the patch test was negative in all 16 persons having a one plus Mantoux reation, and on three of the four with a two plus Mantoux reaction. All of those with three plus Mantoux readings, however, had definite patch test reactions. Only three persons had a positive patch test with a negative Mantoux.

TABLE I. TUBERCULIN TEST RESULTS BY AGE

Mantoux Test	Neg.		1+		2+		3+				
Patch Test	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Total Tested	Total Pos.	% Pos.
Age 5–9	2	66	0	2	0	1	0	0	71	5	7.0
10–14	1	97	0	2	0	0	3	0	103	6	5.8
15–19	0	82	0	11	0	1	1	0	95	13	13.7
20–29	0	3	0	1	1	0	1	0	6	3	50.0
30+	0	6	0	0	0	1	4	0	11	5	45.5
Totals	3	254	0	16	1	3	9	0	286	32	11.2

TABLE II. TUBERCULIN TEST REACTORS AND X-RAY RESULTS

Mantoux Test	Neg.		1+		2+		3+		
Patch Test	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Total
Calcified Area in Lung	0	0	0	0	1	0	0	0	1
Ghon Complex	0	0	0	7	0	1	6	0	14
Calcified Hilus Glands	2	0	0	1	0	2	1	0	6
Negative	1	0	0	7	0	0	2	0	10
Totals	3	0	0	15	1	3	9	0	31

It would appear that the patch test is unreliable for indicating tuberculin sensitivity below the level which will produce a three plus Mantoux reaction with 0.1 mg. O.T.

In Table II, x-ray findings have been correlated with the tuberculin test results. Although some of the Mantoux tests read as one plus were doubtful positives, this table reveals that eight had definite x-ray evidence of infection. It should also be noted that all three with negative patch tests and two-plus Mantoux tests had x-ray signs of primary tuberculosis.

Tuberculin tests, especially in surveys of this nature, are used primarily as a screen to indicate individuals most likely to exhibit open active tuberculosis on further examination. In this instance, no active cases were found, and in most studies reviewed no mention was made of the relative effectiveness of the Mantoux test and the patch test in this respect, although Vollmer[8] did state in a popular article that of 847 children admitted to Mt. Sinæ Hospital, there was only one case with clinical, roentgenographical, or bacteriological findings indicating a tuberculous infection that failed to react to the patch test. This was a child with miliary tuberculosis in whom the Mantoux test with 1.0 mg. O.T. was also negative. In this article he also reported a mass examination of 613 high school students carried out by the New York Health Department with the Mantoux, patch test, and x-ray examinations in which no significant lesions were missed if the patients failed to react positively to either the patch or Mantoux test.

It may be that the patch test will prove to be practical even if those with slight sensitivity to tuberculin are missed. Before this question can be answered, further study of survey end results seems indicated.

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PNEUMONIA IN RURAL COMMUNITIES*

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THE purpose of this paper is not to bring out statistics of a large group of pneumonia cases, but rather to illustrate the marked changes in the treatment of pneumonia which have taken place the last thirty-six years in rural communities in Minnesota.

In the early days of my practice in Rushford, a small city in southeastern Minnesota, more than thirty-six years ago, pneumonia was dreaded more than any other disease, and from early cold weather until late in March, it was the most frequent of all serious illnesses. Calling the doctor was usually delayed by people in the country until the patient had been sick for several days. He was called earlier only when a patient began expectorating a pink colored sputum, or if there were chest pains with a cough. These symptoms were interpreted, then as now, by some member of the family or some neighbor as pneumonia, and it was frequently called "Ammonia on the Lungs." A few of you older men present today will remember the helplessness of the situation. The word "Pneumonia" or "Lung Fever," spread fear into the hearts of the whole household. Moving a patient to a hospital was out of the question. Those were the horse and buggy days. Nurses were few and far between, they were considered more or less of a luxury, and when needed were seldom available. The care of the

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patient was left to members of the family or perhaps some "handy woman in the neighborhood." She usually had a solemn face and often the only order she would and could willingly carry out would be the application of a mustard plaster to some painful part of the chest, or to the side of the chest involved. Orders for sponging or the giving of a general bath to make the patient more comfortable or for the reducing of temperatures were looked upon with horror. Fresh air and baths were considered dangerous for pneumonias, and furthermore the windows had been fastened shut for the winter. Drugs were used in the hope that they would have some value, and the worst tasting mixture was usually given credit for being a very good "Pneumonia Medicine." Quinine was used consistently, and if large enough doses were given it was probably the most valuable drug used. Whiskey was kept handy and in cases in which the pneumonia was terminated by a crisis it was very valuable. In other cases it helped the night watch keep up their courage. Mortality ranged from 15 to 20 per cent throughout Minnesota.

Very little progress was made in the treatment of pneumonia for many years. Better roads and automobile transportation of pneumonia patients to hospitals made some changes for the local practitioner and the patient had better care, but mortality rates were still high. Oxygen undoubtedly tided over a few, provided it was used early and not merely as a last resort, and the most that can be said for oxygen is that it is a sustaining agent and makes the patient more comfortable. Optochin Base, an alkaloid of the cinchona family, was without any doubt in my mind the best anti-pneumococcic drug until the present sulfanilamides came into use. I used it for many years and had more confidence in it than in any other drug, until its dangerous effects on the retina were reported and even blindness followed its use in a very small percentage of cases. Fortunately I had no such accidents. So much for reminiscing.

During a period of fourteen months beginning in February, 1939, and ending in April, 1940, I treated thirty-one patients with pneumonia. For seventeen of these I had the pneumonia typed. The other fourteen had been sick for more than three days before I was called and at that time I could see no very good reason for typing, as far as the treatment with serum was concerned. If I had to do it over again, I would have them all typed. I will come to this question a little later.

The distribution of types was as follows:

No. Patients	Types
2	3
1	4
4	7
2	8
1	9
2	13
1	16
1	17
1	19
1	23
1	32

In eleven of the seventeen cases in which I had the sputum typed I used the anti-pneumococcus serum; in four of these I gave a total of 80,000 units and in seven I gave a total of 60,000 units. In all cases, rabbit serum was used and there was not the slightest reaction in any of the cases. The conjunctival test with rabbit serum was used in all cases in which serum was administered.

In the other six cases that were typed, forty-eight hours had elapsed before I got a report, due to difficulty in typing, and I felt that the time had passed when the greatest amount of good could come from serum administration.

The Minnesota State Board of Health laboratories did the typing in each case, and they give a splendid service twenty-four hours each day, and the only problem in rural communities is to get the sputum specimens to the laboratories with as much speed as possible. Rushford, like many other small towns, is not blessed with too many mail trains, but we have a good highway across to Winona—twenty-one miles away, where there are many fast mail trains, plus bus service. In order to get a report back in a hurry the specimens were either taken to Winona by some member of the patient's family or I had them taken over by messenger and sent special delivery. In a number of cases the report as to type was telephoned to me eight hours from the time the sputum was sent from Rushford to Winona. In the telephone report coming from the laboratory the question was always asked if I wanted serum, and in a number of cases the serum was called for at the bus depot in Winona and brought back and given to the patient within eighteen hours

from the time the sputum was sent to the laboratories.

Getting back now to the fourteen cases I didn't have typed: One of these patients died, the only certificate of death by pneumonia I signed during the fourteen months. The patient was a woman eighty-three years old who had been sick several days before I was called. She didn't take kindly to sulfapyridine and began vomiting following the third dose. I then gave it rectally in solution and, of course, most of it in suspension but it didn't do anything for her. Given this way there is probably very little absorption. Whether she would have survived if her pneumonia had been typed and serum given is a question. In cases like this I believe pneumonia should be typed, for then all the treatment of today could be applied.

The other thirteen patients ranged from two years to seventy-two years and all of them had been sick for more than three days before I saw them. Three of them were brought to the office, including a brother and sister—fourteen and sixteen years old—who had temperatures of over 103 degrees. They were brought in a distance of over nine miles over bad roads. The sister had a stormy time, delayed resolution with an irregular temperature that lasted for more than three weeks. These patients undoubtedly had the same type of pneumococcic infection, but the brother got along very well. The length of his illness was the average; resolution took place normally. Both of them had the same treatment with sulfapyridine. The question in my mind has been, would the sister have had a normal recovery without so much loss of time if she had had the help of serum?

All of the thirty-one patients were given sulfapyridine, and there can be no question as to its value—it has changed the picture of the treatment of pneumonia, provided the patient can tolerate the drug. Four of my patients could not. One of the patients who could not tolerate sulfapyridine was a robust farmer fifty-seven years old who had a type 3 infection. He started to vomit following the second dose and no matter how it was given or with what it was given it seemed like poison to him. His temperature was 104.5 degrees and the greater part of the right lung was involved. Fortunately there was no delay in getting the sputum typed and the first dose of the serum was given to him in eighteen hours from the first time I saw him. He was given 20,000 units every twelve hours for four doses. He responded to this treatment beyond expectations and his temperature dropped to normal a few hours following the third dose. From this time on he made an uneventful recovery.

Only one of the thirty-one patients had a complication and that was a pleural effusion of 36 ounces of a clear fluid. Five of the thirty-one had the care of a trained nurse, three of them full time, the other two part time. All the others were taken care of by members of the family who were given instructions as to general care, keeping a memorandum of temperature readings and the intake of fluids, especially the juice of citrus fruits.

Conclusions

1. Typing should be done in all cases of pneumonia and can be done in all rural communities even though the doctor is not called within twenty-four or thirty-six hours following the onset. It will to some extent give us a clue as to the virulence of the type of pneumonia we are dealing with.

2. The administration of anti-pneumococcic serum according to type is the logical treatment, and even though it is not 100 per cent effective, it can be given with the assurance of some benefit, and in the treatment of pneumonia we need every help possible.

3. Sulfapyridine, if given carefully and judiciously, is without any question the most valuable drug discovered to date for the treatment of pneumonia, provided the patient can tolerate the drug.

4. Pneumonia cases can be typed with speed, and treated with efficiency in rural communities, by country doctors in spite of and without the benediction of Hugh Cabot, who has belittled the value of "country doctors."

CARCINOMA OF THE STOMACH*

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CARCINOMA of the stomach is a lesion which occurs so frequently and which has such grave implications that it should be of interest to all engaged in the practice of medicine and surgery. It has been estimated that approximately 40,000 people die each year in this country alone of carcinoma of the stomach. In a recent report by Livingston and Pack it was stated that in this country carcinoma of the stomach accounted for more deaths than traffic accidents between the years 1923 and 1937. There is some evidence to suggest that malignant gastric lesions are accounting for more deaths each year.

At the present time the only chance to cure carcinoma of the stomach resides in recognition of the disease early enough to permit its surgical removal. Furthermore, from present knowledge the only hope of reducing mortality from this lesion in the future is by establishing the diagnosis early in a higher percentage of cases, so that resection will be feasible in a greater number of cases. Since Billroth's first successful resection for carcinoma of the stomach, performed fifty-eight years ago, many patients have been cured by this means of treatment, but, so far as I know, no patient has been cured by any other form of treatment.

How then is the early diagnosis of carcinoma of the stomach to be established: Fortunately, the means by which this may be accomplished when the opportunity is presented are within the reach of us all. The necessary prerequisites include: (1) a clear appreciation of the early symptoms which may be caused by carcinoma of the stomach, (2) the accurate evaluation of a carefully elicited history, (3) possession of a readily aroused suspicion concerning the possibility of carcinoma of the stomach, and (4) the insistence on a competent roentgenologic examination of the stomach in every possible case. If we wish to establish the diagnosis early in the course of the disease one of the first things we must do is to discard the old textbook picture of carcinoma of the stomach. The symptom complex of gastric carcinoma described in most textbooks includes only the findings of long-standing and advanced lesions. The characteristics of this disease usually mentioned consist of emaciation, palpable tumor, nodules in the liver, and also anemia, cachexia and loss of strength. Obviously, if we wait until this stage of the disease is reached, the patient benefits very little by its recognition.

Several years ago Wilbur described three clinical syndromes, one of which occurs usually in the presence of carcinoma of the stomach. I believe that these syndromes are worthy of emphasis as their recognition is essential in detecting early gastric carcinoma. The first of these is a so-called typical history usually presented by a patient of middle age or older. (It is well to remember that in 8 per cent of cases, gastric carcinoma affects patients forty years of age or less.) Commonly the patient has enjoyed perfect digestion until the rapid onset of dyspepsia. This dyspepsia may consist of anorexia, discomfort after meals, belching, epigastric distress, nausea, and occasionally vomiting. These symptoms usually are progressive and constant in nature, and as time goes on there is loss of weight and strength. A history of this type always should arouse the suspicion of gastric carcinoma and always should demand careful roentgenologic examination of the stomach. A second group of patients presents the so-called ulcer type of history. The patient who presents this type of history may have experienced symptoms similar to those caused by peptic ulcer for a brief or prolonged time. Very frequently these symptoms may then change in one of various ways. There may be disappearance of the customary intermittency of symptoms or alteration of the pain-food-ease sequence so commonly present in cases of uncomplicated peptic ulcer. Food may aggravate rather than relieve the distress and a more or less continuous dull ache may develop in the epigastrium. Nausea and anorexia occur frequently and the ordinary measures which gave relief previously may fail to do so now. The

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possibility that a patient who actually has carcinoma of the stomach may present symptoms suggestive only of benign ulcer renders roentgenologic examination of the stomach imperative before instituting medical treatment in any case of suspected peptic ulcer. A third group of patients with gastric carcinoma may present a "nondescript" type of history. In this group the symptoms referable to the gastro-intestinal tract may be vague, indefinite or entirely absent. They may consist of constipation, bloating, belching, abdominal discomfort or other similar nonlocalizing, rather mild, complaints. Not infrequently the patients may say that they were in perfect health until the occurrence of a recent infectious process such as "flu," and that they have not regained their strength. There may be a gradual loss of weight and strength and the development of anemia. It may be difficult or virtually impossible to establish the diagnosis early in cases in which patients present this symptom complex. From such an individual even the most astute clinician may elicit no evidence suggestive of gastric carcinoma until the lesion is well advanced. It is unfortunate but true that certain carcinomas situated in the stomach make their presence known only after the hope of surgical cure has passed. This fact, rather than being discouraging, however, should make us more on the alert to recognize all those lesions which can be detected while they are still amenable to surgical treatment.

A clear appreciation of these three groups of symptoms which may be experienced by patients with gastric carcinoma is most important in the early recognition of this disease. One of these three definite syndromes may not be present always and various combinations may occur; however, any of these symptoms always should arouse suspicion of the possibility of gastric carcinoma and demand roentgenologic examination. In order not to overlook certain instances of carcinoma it is necessary to perform many roentgenologic examinations of the stomach which reveal only normal findings. This is a matter of small concern, however, considering the benefits that may accrue in cases in which early diagnosis of gastric carcinoma is established.

What then are the factors which lead to the late diagnosis of carcinoma of the stomach? These may be divided into several categories. One of the most important factors remains inherent in the nature of the lesion itself. Unfortunately, carcinoma of the stomach may be so situated and develop in such a manner that it does not cause symptoms early in the course of its growth. When the growth arises in the cardia or fundus, recognizable symptoms may be produced only after extension or metastasis has rendered the condition inoperable. There seems to be little or nothing that can be done to overcome this obstacle to early diagnosis. The second factor which may lead to late diagnosis resides largely with the patient because of his failure to seek medical attention promptly following the onset of symptoms. The mild and apparently innocuous nature of the symptoms may mask the seriousness of the underlying lesion. Another cause of growing importance is the use of various home remedies and, more particularly, self-treatment as directed by the producers of certain patent remedies. As regards this "patient" factor which leads to late diagnosis of carcinoma of the stomach in a certain percentage of cases, something can, of course, be accomplished by intensified educational programs for the laity.

The third factor which leads to late diagnosis of carcinoma of the stomach in some cases resides with the medical profession in failure to recognize the condition early when the opportunity for diagnosis is presented. What leads to this failure on our part? There are, of course, numerous reasons. Unfamiliarity with the clinical picture which is presented by many patients having early carcinoma of the stomach may be responsible in some cases. Reluctance to secure roentgenologic examination because of expense or local unavailability of adequate roentgenologic facilities not infrequently results in a postponed diagnosis. If diagnosis is to be made while the lesion is still curable roentgenologic examination must be carried out, in many cases, when perhaps the lesion is suspected only faintly and not after the clinical diagnosis is obvious.

In addition, there are certain pitfalls in the diagnosis of carcinoma of the stomach against which we should be on guard. First and foremost probably is that of gastric ulcer. Whether a benign gastric ulcer may become malignant will not be discussed at this time; however, the fact remains that certain patients who actually have a small ulcerating carcinoma of the stomach may be thought to have a simple benign gastric ulcer.

Our responsibility, therefore, after establishing the diagnosis of gastric ulcer if operation is not performed at this time includes careful observation, both clinical and roentgenologic, in order to be certain that the ulcer disappears entirely, as anything short of this is not evidence that the lesion is benign. Furthermore, the patient should be followed over a period of time in order to be certain that recurrence does not take place. In certain cases a diagnosis simply of anemia may be made and the underlying cause of the anemia such as carcinoma of the stomach or a malignant lesion elsewhere in the gastro-intestinal tract may remain undetected. For this reason roentgenologic examination of the stomach and in fact the entire gastro-intestinal tract should be performed in every case of severe anemia of indeterminate cause. At times a gastric polyp may be or become malignant, and when a polyp is found in the course of roentgenologic examination of the stomach it should not be disregarded merely because it does not appear to be responsible for the patient's symptoms. In most cases such polyps probably should be removed, but if such a polyp is not removed surgically it should be observed by a competent roentgenologist periodically in the future and operation performed if there is any growth or other change in its physical characteristics. The fourth group of patients in whom carcinoma of the stomach may not be recognized early is represented by the individual of middle-age or beyond who comes to the physician with obvious organic disease, the exact nature of which cannot be determined. The patient usually is anemic, has lost weight and is weak; yet, all methods of clinical investigation including roentgenologic and perhaps even gastroscopic examination reveal only normal findings. We should insist that this individual return for reëxamination in two or three months, as at that time a growth in the stomach may be detected. If the patient is left to his own devices and not impressed with the importance of reëxamination in the near future, he may return six or twelve months later with a carcinoma of the stomach which is grossly inoperable.

What are the prospects of cure for the patient who has carcinoma of the stomach? When these prospects are considered from the point of view of all cases in which the diagnosis has been made, the outlook is rather gloomy; however, when one considers the prognosis of those who have had the benefit of gastric resection, the chance of cure is far more favorable. Considering first all cases in which the diagnosis is made, experience at the present time at the Mayo Clinic reveals that surgical exploration is performed in approximately sixty of each 100 cases, and in the remaining forty, palliative medical treatment alone is instituted because of the advanced and obviously inoperable nature of the lesion. Of these sixty cases in which exploration is performed, resection of the stomach is performed in approximately thirty. Postoperative mortality will account for approximately five of these thirty patients. This means, in other words, that in only approximately twenty-five of the original 100 cases in which the diagnosis was made will the patients have a chance for cure and only about one-third of these will live for five years. Obviously, if diagnosis were established earlier in a higher percentage of cases, surgical removal of the lesion could be accomplished more frequently and consequently the number of cures increased.

If we consider the prospects of cure only from the point of view of those who have undergone gastric resection and survived the operation, the outlook is more favorable. In a recent study of 10,890 cases in which gastric carcinoma was diagnosed at the Clinic in the years 1907 to 1938, inclusive, it was found that of the 1,951 patients who survived gastric resection and were traced, 29 per cent lived for five years or longer following operation. There are, of course, many factors which influence the prognosis when gastric resection has been performed. The three most important factors are: (1) grade of the lesion, (2) local extent of the lesion, and (3) the presence or absence of involvement of the regional lymph nodes.

Summary

It should be emphasized that carcinoma of the stomach occurs very frequently, probably more frequently than we are inclined to realize. At present the only hope for cure of carcinoma of the stomach resides in surgical removal of the growth. The only hope of removing a carcinoma of the stomach surgically resides in establishment of the diagnosis sufficiently early. The means for establishing the diagnosis of carcinoma of the stomach early are within reach of us all,

namely: appreciation of the early symptom-complex of this lesion, a carefully elicited history, an easily aroused suspicion of gastric carcinoma, and the insistence on roentgenologic examination by a competent specialist in this field in any case in which the presence of a malignant lesion is faintly suspected. Of patients who survived gastric resection, 29 per cent were alive five years after operation.

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PROGNOSIS FOLLOWING PALLIATIVE RESECTION FOR CARCINOMA OF THE SIGMOID*

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UNFORTUNATELY, as yet in the therapeutic attack on carcinoma of the colon, sufficient progress has not been made in either the medical education of the public or the diagnostic acuity of the physician. Accordingly, many patients suffering from such malignancies find that their condition is in an advanced stage when they are first subjected to operative procedures. It is inevitable that surgeons interested in patients who have colonic neoplasms frequently will find, on opening the abdomen, a carcinoma which is inoperable, so far as cure is concerned, either because of the local situation or because metastases are present in the liver. Such a situation is perplexing for the surgeon inasmuch as the prognosis is so hopeless. The local growth may be of the small annular variety, and nearly every surgeon can recall a case either in his own practice or in that of a colleague, in which resection of such a malignant lesion, even when metastasis is present, is followed by a considerable period of well-being on the part of the patient, during which time the patient actually may gain in weight and strength.

Because luminal obstruction of the intestine is or will be present if the patient has carcinoma of the colon, the surgeon must act in some manner to circumvent the discomforts attendant on such a catastrophe. Action must be taken even though a cure may not be achieved.

When the lesion is situated in the right half of the colon, ileotransverse colostomy will short-circuit the obstructed region and will solve the difficulty so far as obstruction is concerned. When the transverse, descending or sigmoid segments of the bowel are involved, the tumor-bearing portion often may be exteriorized and removed. Occasionally, in the splenic flexure and descending colon, when there is redundancy in the transverse and sigmoid portions of the colon, colocolostomy may be accomplished. Still more rarely, sigmoidosigmoidostomy, rather than resection, may be the procedure of choice. Colostomy, on the other hand, usually is the procedure of choice for inoperable rectosigmoid and rectal lesions.

Statistical studies pertaining to the duration of life of patients following palliative resection for carcinoma in any segment of the colon are not numerous. Gabriel and Lloyd-Davies, discussing the performance of colostomy for inoperable carcinoma of the rectum, presented an interesting analysis. Two hundred and thirty-eight patients having locally inoperable cancer were subjected to colostomy and more than 50 per cent died within twelve months after this operation. Metastases to the liver and peritoneum were present in a group of sixty-eight patients subjected to colostomy and, as might well be predicted, more than 50 per cent of the patients were dead within six months of the performance of this operation.

Colocolostomy may be done if the malignancy is situated in a favorable site. However, the procedure is not safe in the presence of more than a mild degree of obstruction. The advantage

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of avoiding creation of an abdominal anus is readily apparent in cases in which colocolostomy can be performed. Wilson and one of us (Mayo), previously have reported the results of palliative colocolostomy performed in forty-two cases of inoperable malignant tumors of the colon. Significant features of this review were the facts that the primary operative mortality was 14 per cent and that five of the six deaths occurred in cases in which the transverse colon was anastomosed to the sigmoid segment. Increased tension on the line of anastomosis and leakage may have accounted for these deaths; for this reason preliminary cecostomy may be called for in such circumstances. Among the thirty-six patients who survived the operation, the average duration of life was 11.5 months.

The advantages of simple colostomy done above the tumor-bearing portion of bowel are apparent. Intestinal obstruction is prevented or relieved, abdominal pain is alleviated and the danger of hemorrhage is lessened. In addition, patients who have rectal carcinoma report a decrease in discharge and mitigation of tenesmus, both of which results are particularly appreciated. Many individuals have a temporary abatement from the cachectic syndrome, frequently associated with inoperable carcinoma. Appetite, weight and strength are enhanced for a variable period, although the end result is forecast at the time of surgical therapy. However, a brief and often happy respite from their difficulties is afforded these unfortunate individuals.

In the treatment of patients who have small lesions which can be removed without technical difficulty, the primary growth often may be resected to the advantage of the patient. Although statistically unproved, it is the feeling of many surgeons that, even when demonstrable metastasis of small degree is present in the liver, the secondary lesions do not develop as rapidly when the stimulating influence of the preliminary tumor has been removed as they would were the primary lesion undisturbed. With these thoughts in mind, we studied a group of patients for whom palliative resections of various types for carcinoma of the sigmoid had been employed. These patients comprised an admirable group for study in that not only was the obstruction relieved by the operation, but in addition, the primary growth was removed. Some comparisons also may be made between members of this group and those patients subjected to colocolostomy referred to previously.

Fifty-five patients comprised the group for whom palliative resection for carcinoma of the sigmoid was performed. Included in this number were thirty-nine men and sixteen women, and as might well be expected, 82 per cent of the patients were between the ages of forty and seventy years. As further evidence of the risk of operation for these patients, it might be added that 38 per cent were in the sixth decade and 29 per cent were in the seventh decade of life. Only four of these people had malignant lesions which were considered to be locally inoperable in relation to eventual cure. The remainder of the group had nodules in the liver or peritoneal metastases.

By far the majority of these patients were subjected to the Paul-Mikulicz procedure of exteriorization of a portion of bowel or modification of this operation into extraperitoneal resection. In proceeding according to the latter technic, the growth is removed by cautery over a three-bladed clamp after the abdominal wall has been closed in layers. In some instances a catheter was slipped into the proximal loop of bowel to permit passage of gas and fecal material without contamination of the operative wound. Since the catheter remained in place for a period of five to eight days, sufficient progress in healing of the wound took place to prevent infection.

Ten of the fifty-five patients succumbed to the operative procedure, resulting in a primary surgical mortality of 18 per cent. An additional ten patients are still alive at the time of writing. The postoperative duration of life for the remaining thirty-five patients was 16.5 months. Because of the small number of patients, making of a correlation between the pathologic grade of the tumor and longevity did not seem justified. Of interest, however, is the fact that of the forty-four specimens subjected to pathologic grading on a basis of 1 to 4, thirty-one (70 per cent) were graded 2.

Although all of the patients subjected to colocolostomy did not have carcinomas of the sigmoid, nevertheless the lesions of members of the two groups are similar enough to point out a few comparisons, in spite of the fact that each group was small. It will be recalled that the average duration of life for thirty-six patients who survived colocolostomy in the first group

was 11.5 months and that the primary operative mortality was 14 per cent. In contrast, are the statistics derived from the present (second) group, in which there was an average survival of 16.5 months and a primary mortality of 18 per cent. It should be recalled that for some of the patients in the former group, colocolostomy may have been more feasible and expeditious than an exteriorization procedure.

It is freely recognized that the choice of therapeutic procedure for an inoperable carcinoma of the sigmoid is fraught with difficulty. The surgeon must consider the degree of risk involved, the probable expectancy of life for his patient and the degree of palliation expected from any particular operation. Primarily, intestinal obstruction must be relieved or averted. Therefore, three avenues of approach are open to the surgeon: performance of (1) colostomy above the situation of the lesion; (2) colocolostomy or a short-circuiting procedure about the neoplasm if the latter is favorably situated; and (3) exteriorization or extraperitoneal resection. If obstruction of any appreciable degree is present, an intra-abdominal procedure involving suturing of the partially devitalized bowel is hazardous and is contra-indicated. A vent for the fecal stream must be provided. This may be done in many cases almost as easily by exteriorization of the malignant lesion as by the creation of a double-barrel colonic stoma or cecal stoma. In addition, removal of the growth may have some part in increasing the expectancy of life of such patients. It must be emphasized that these considerations are but generalities and that for a particular patient the surgeon must think of the condition of that individual as a special problem. He should also remember that his estimate of risk is subject to error and that every possible advantage should be given these unfortunate people.

Summary and Conclusions

1. Prime observations concerning a group of fifty-five patients, for whom palliative resection of the sigmoid for inoperable carcinoma was performed, have been reviewed.

2. Comparison of these observations with those made concerning a group of individuals subjected to colocolostomy, reveals a slightly lower primary surgical mortality and a shorter duration of life postoperatively for members of the latter group.

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STARTING THE PRACTICE OF MEDICINE*

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UNDER this subject we shall discuss the following: choosing a location, problems of the young physician, his relation to his fellow practitioners and hospitals, regulation of fees, choosing between individual and group practice, and his responsibility for the future of the profession.

In this class, we shall assume that we have, in embryo, a representative of every branch of the profession.

To give each of you the proper advice for your future guidance in the various chosen pursuits is beyond anything I would attempt to do. What I am going to say to you today should apply to the average student who graduates from this or any medical school. In order to qualify for such advice, one's own medical experience must necessarily have been considerably varied.

If you will pardon me for a brief personal reference, I will just mention the various experiences I have had since leaving this University Hospital in 1911. First I spent five years practicing in a small town in the western part of this state; then five years at the Mayo Clinic, including one and a half years in the Great War. Since then I have practiced in Minneapolis, during which time I have always been connected in a comparatively small way with teaching in this medical school.

For my own satisfaction, it has given me a chance to come in contact with not only widely different types of practice, but perhaps more

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widely different types of men. It is always interesting to observe the various attitudes of men, in general practice, in highly specialized group practice, and the full time research and teaching positions, toward the real practice of medicine.

The first question each student asks himself when contemplating the beginning of practice, is: Where shall I locate? This, I think, properly should be the first question. Fortunately not all are suited for the same kind of practice. A small percentage of you will be attracted to laboratory work, research or teaching positions. It has been estimated that about 10 per cent of each class take up this sort of medical work. All of you will want further school work. If you have the inclination and are financially situated to do so, I advise you to go on now. If your course is interrupted, you may never get back to study and reach your goal. If this is likely to happen, I believe you should continue your school work now. However, I would like to see every physician, no matter what his future career, put in some time in the general practice of medicine.

As stated before, as we come in contact with the men in various fields of medical work, it is interesting to note the various attitudes of these men. They seem to vary according to the type of work chosen.

To care for the sick is the ultimate aim of every man who enters the medical profession. Even a short time in the general practice of medicine fosters understanding and a coöperation at a later date on the part of the specialist.

Many of you will be anxious to get started in the real practice of medicine. Self-preservation is the first law of life. After this long financial drain, you will feel that you must get out where you can begin to get some financial return on your investment.

After living here for some time in the glare of the city lights, many of you will hesitate to take up a rural practice. The recent depression, poor crops, low prices, and other numerous obstacles have made rural practice appear less attractive. Neither is it so convenient to attend medical meetings, call in consultation, and make free use of laboratory aids. In spite of all these obstacles, many of you will practice in rural districts and be successful.

Some of you with little or no experience in living in the country may have difficulty adjusting yourselves to the situation, for, in order to be successful, you must became a part of the community in which you locate. Many of you will be able to adjust yourselves to any situation you happen to face.

At present there is much agitation about the dearth of rural physicians. This need is much exaggerated. Our survey of this state does not show any great shortage of rural physicians. There are some isolated, sparsely populated areas in the northern part of the state in which physicians are widely separated. The few people who reside in these areas must expect to travel some distance for medical care. Even with government subsidy it would not be feasible to establish first class medical care close to these people. Our investigation has shown that it is not so much lack of medical care in these districts as it is indifference or lack of education on the part of certain groups. Physicians within reach have never refused to go many miles to see these patients or give them adequate care, even with no prospects of financial return. The State Medical Association not long ago requested through the newspapers throughout the state information regarding those who had been unable to obtain adequate medical care. About 200 replies were received. These replies showed definitely that these people could not be satisfied or that they did not know how to avail themselves of the medical care provided for them.

Granted that there is no scarcity of medical men in this state, the normal retirement and loss by mortality will make room for those of you who wish to take up general practice in the rural districts.

Nothing will cause you more apprehension when you contemplate starting out to practice than that you may have to sit in an empty office waiting for patients. To avoid this, many start out on small salaries. This is all right provided you are building for the future. If you have opportunity thereby to come in contact with good material and to obtain valuable experience, you will have made a wise choice. You will at least keep busy and have a chance to show what you can do. If you do your work well, not only the physician with whom you work but also the patients will soon recognize your ability. Soon you will establish yourself as a practitioner of medicine. Whatever presents itself from then on, you should be ready to cope with.

If you accept a small salary from some county,

state or federal agency, in which there is little chance for advancement, then I think you will make a mistake. Occasionally a physician accepts a small salary from some of these agencies to take care of a practice which justly belongs to the local physician. County Boards have done this in the past. Today the Minnesota state law gives the indigent patient the right to choose his own physician.

In he large cities the indigent patient is still taken care of largely without remuneration to the physician, but in the rural districts this is not the case. An agreement with the various boards responsible for the indigent, allows the physician a fixed, reduced fee for the care of these patients in rural areas.

While there will be disadvantages, mentioned before, in the ordinary rural practice, you will have many advantages that the city practitioner never experiences. Here you are thrown on your own responsibility. You must make decisions by yourself. You must develop initiative. You will have to make your diagnosis frequently without having laboratory men or consultants to make them for you. This work will frequently develop your judgment to a surprising degree. I have in mind a man with whom I came in contact when I first started to practice in the country. Although he was a comparatively young man, he had practiced several years. When he received his medical education not even a high school education was required for entrance to the medical school. Then there were medical schools giving courses of two or three years. A medical degree was not required to practice medicine. If one could get by the State Board examinations, he could practice medicine. This man had such a limited scientific education. But he really had learned the "art" of the practice of medicine. He was untiring in his efforts to please the patient. He had acquired all the qualities necessary to attract and hold his patients. He was always neat, clean, sympathetic, mildly humorous, and tolerant to the highest degree. He did everything possible to give the patient relief, even if it was only temporary. Then he got down his books and worked and studied that he might give the patient the best he could.

While he started out a very young man with a very limited scientific education, he eventually became one of the highest types of the old time family physician. Rarely did his patients go elsewhere without consulting him. After fifteen or more years in country practice, he took up special work and now is a successful specialist.

The recent rapid development of county medical societies and the continuation courses here at the University of Minnesota give the rural physician a good opportunity to keep up with the rapid development of medical science. No state gives the rural physician better opportunities to keep abreast of medical progress.

Some of you will become rural physicians. These small communities will need you. Some of you will be contented to remain there, and will become not only successful physicians but the most influential citizens in the community. Some of you may desire to get away later. Even if you do, I am sure you will consider such practice a valuable experience in your life. Many of our most successful specialists in the city now, began as rural physicians.

If you begin general practice in the city, after your year of hospital internship, you will encounter many of the same obstacles that your contemporaries will in the rural districts. Competition will be more keen. More often your patients will go to another physician without even hinting to you that they are going. You must learn to expect this and not take too great offense from it. Perhaps the patient has shown good judgment. You must cheer up. Try to forget the loss of this patient and learn by the loss of this one how to hold the next. If you feel that the patient is not satisfied or that you are not succeeding with the patient, it is often wise for you to be the first to suggest consultation.

Our profession must uphold the right of free choice of physician for every patient. If a patient is examined by you and is not satisfied with your opinion, he has the right to consult any other physician he may desire.

Again, in starting general practice in the city, it is usually advisable to work with an older man who has a well-established practice, if that is feasible. First, be sure that the older man holds the respect of the profession and the community. You may be tempted to practice with a man who has a very large practice but who has obtained this practice by unfair or unethical means. He may not retain this practice for long if his principles are unsound. A man with little experience may have difficulty in judging an older man's standing.

You have learned quite well the scientific side of the practice of medicine. With the older established man you will not only add to your knowledge of scientific medicine but you will learn something of the art of the practice of medicine. A noted medical man has said that the latter is of about equal importance with the former so far as your success in the practice of medicine is concerned.

Many fanciful and bizarre plans for the practice of medicine are being put before the young man of today. Beware. Do not enter into any unusual plan until you have studied it carefully. A plan that may be attractive to you today may serve to mar your future. Your county and state medical society, as well as some of your older confreres, stand ready to advise you in all these matters.

Peace and harmony is important in all walks of life. Perhaps in no walk of life is it more important than in the practice of medicine. Always strive to coöperate with your medical confreres. You may think, as some already have, that you are going to establish prestige by criticising your competitors. Do not do it. Some day you may need their assistance. Whatever mistakes they have made, you may make sooner or later. The longer one practices, the more he realizes the value of the friendship of his fellow physician. A noted physician once said: "Never throw mud at the other fellow. If he throws mud at you, strive to get so far ahead of him that he cannot reach you." Jealousy or the lack of skill on the part of the offender, is frequently evident in these cases.

Sir William Jenner said: "Never believe what a patient tells you the other doctor said." Remember, patients will misinterpret what you say as well as what the other doctor said. Complaints coming to our medical societies bear out the truth of the above quotation. Many malpractice suits have their beginning in unfortunate remarks of a physician made relative to the work of his competitor. It behooves us all to be especially cautious in our comments on the work of the other fellow.

No physician can carry on a large successful practice without being intimately associated with a well-standardized hospital. If you practice in a rural area, you may have to conduct your own hospital or be closely allied with the management thereof. I would like to see every practicing physician put in a position where he would have to become acquainted with the trials and tribulations of hospital management. The average physician little realizes how often unfair patients and lawyers take advantage of unavoidable accidents in the hospital. An accident may be entirely the fault of the patient, yet frequently exorbitant damages are recovered from the hospital. Unfortunately, a careless remark by a physician may be the spark that starts the conflagration. Every first class hospital should have the undivided support of the attending medical staff.

The same Code of Ethics applies wherever you locate. Read this Code carefully. Some day you will be pleased that you have subscribed to this Code. There is no greater satisfaction in the world than to have followed a noble profession, lived up to all the rules and regulations, and held the respect of your profession and community. The value of such a career cannot be measured in silver or gold.

You here today have been sifted out of many more who started out with you several years ago. You are the sole survivors in the process of elimination. Wherever you go or whatever you do, be determined to be successful. Your success will not be measured merely by your financial gain, but more by what you have given to your profession and your community. Determination and a will to succeed are in your make-up or you would not have come this far. Having come this far, you must keep before you the rest of your lives the ideals of your profession.

Your teaching in school has dealth largely with the care of the patient with organic disease. In practice, you will be surprised to see so many sick patients in whom you can find no evidence of organic disease, yet must be treated by you.

The therapeutics of functional diseases, psychoneuroses, or, according to Crile, pathologic physiology may be your greatest problem. Because you do not find organic disease does not necessarily mean there is none present. Neglect or improper treatment of these patients by physicians of the past has had much to do with the presence of cults in our midst today. Never tell a patient there is nothing wrong with him or to go home and forget about his ailment. There is something wrong or he would not have come to you. Try to discover his trouble and remedy it if possible. Study these patients carefully. If you are not satisfied that you can help them,

call in consultation. Try to relieve their suffering, even if only temporarily. Then study some more. Do not overlook any detail. Do not give them up to the cults. You will be the defenders of the profession in the future. You cannot legislate the cults out of existence. Their personalities and salesmanship are ready substitutes for appropriate medical care. Your foundation, your training and standing render you the most capable persons for the care of the sick, whether or not their illness has a pathological basis.

The success of the chiropractors and other cults is well inferred by a remark of the late Dr. Charles Mayo. He said, "Rub a dog's back and he's your friend." The cults have won the friendship and confidence of these unfortunate people who need sympathy and friendship, by rendering them just such service. With the help of your confreres, you can and should be able to hold these patients.

While I do not believe we should spend our time and efforts talking about or condemning the cults, I do not agree with the medical man who believes we should sit back and let the cults thrive by exerting undue influence on our legislators or state officials. I am convinced that if the medical men of the past had put forth sufficient effort, few of these cults would have been licensed to practice their pseudo-magic on deluded people. You will be the only properly trained group to see that healers outside your profession do not gain footholds in the future. Do not let politicians or other outside groups control the practice of medicine. Outside control means chaos and inferior medicine.

The State of Minnesota is today notable for the coöperation which exists between the legislators and state officials and the medical profession. Minnesota is one of only thirteen states in this country that has been successful in enacting a Basic Science Law. When you learn that not more than a dozen healers outside your own profession have been able to pass the Basic Science examinations during the past twelve years, you may realize something of the importance of this law.

To preserve these accomplishments in your state requires constant vigilance. The responsibility for maintaining this vigilance will be yours. Do not shirk it. No matter how busy you are, take time to study the economic side of practice and learn the inroads outsiders are trying to make on your profession.

Socialized or government controlled medicine has recently been a subject of much discussion. Study this subject for yourself. You will be surprised to learn how many apparently intelligent people have been deluded sufficiently to make them advocate this system of practicing medicine. You will find on investigation that the agitation for such a sysem is fostered largely by political racketeers, social workers, commercial magazine writers, or medical men who know little about the real practice of medicine. Usually you will find there is some selfish interest at the bottom of any promotion in this direction. It always means the control of the practice of medicine by the politicians.

No greater opportunity for graft could be offered for politicians than the control of our profession. In Germany, under government control, 40 per cent of all money paid in for medical care is used in administration. Some recent bills introduced into Congress, if they become law, would do much to put us under federal control. It is you who must not only care for the sick but also must control that care.

In the matter of fees for your work, you will usually have little trouble. Fees for medical work vary in different communities. After much discussion between medical representatives and lay groups, a fairly uniform fee schedule for the indigent has been established in this state. This you will always obtain from local authorities in rural communities. In Hennepin County a minimum fee schedule has been adopted for the average patient. This was mainly a defense measure. Many compensation insurance companies have exerted influence to cut medical fees to an unreasonable degree. In areas where the overhead expense is less, the fees are naturally less.

Some of you will be asked to join medical groups for the practice of medicine. There are quite a number of successful groups carrying on today. Not many medical men are leaders. It takes real leaders to successfully head medical groups. Medical men are naturally individualists. The extensive training of the medical man fits him for independent thinking. It is usually difficult for him to subjugate his ideas to those of a leader. In a successful group, the ideas of all usually must conform to those of the leader. A chain is only as strong as its weakest link. A

medical group built with every department up to standard, with unity of purpose throughout, should give the greatest efficiency in the practice of medicine. This does exist in some medical groups. If you are fortunate enough to join such a group, you will make no mistake. Such opportunities, however, are rare.

No matter what kind of practice you enter, no matter what branch of medicine you specialize in, your success will be determined by the degree in which you measure up to several determining factors. First among these factors we must place your scientific attainment. You must keep abreast with medical times. You must attend medical meeings, and read good medical literature. Do not fall into the habit of letting the drug houses furnish you your only medical literature.

A notebook in which to keep notes of unusual symptoms and unusual cases, as well as important excerpts from medical literature, is often a valuable aid. From this you may gain knowledge readily when you most need it.

Important as is your scientific knowledge, it only slightly outweighs the importance of your knowledge of the art of the practice of medicine. In this, your ability to know human nature and efforts to please the patient from every point of view are the important elements.

Your appearance, your sympathy for the patient in his suffering, and a tolerant attitude to all his whims, help you to hold the confidence of the patient until you have an opportunity to make a diagnosis of his trouble and determine what you may be able to do for him.

Never forget the wise saying of Epictetus: "Know ye that education and skill are a continuous progression and he that addeth not to that he hath, soon loses his store thereof."

In the time allotted you have received the best training for caring for the sick that is humanly possible. Do not miss an opportunity to add to this store of knowledge. Remember there is always room at the top, but do not miss any steps on the way up.

Be true to yourselves, your patients, and your profession, and some day you will be proud of your profession and your profession will be proud of you.

THE PRESENT SURGICAL MANAGEMENT OF ESOPHAGEAL DIVERTICULA WITH PRESENTATION OF A NEW (?) METHOD*

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THE surgical management of pulsion diverticula is a distinctly controversial subject. All writers agree that when feasible the sac should be removed, and that it may be removed safely in two stages, but much argument arises as to the safety or danger of the one-stage operation. The writer believes that he has a technical procedure not found described in a review of the medical literature which possesses all the advantages of the two-stage operation but which may be entirely accomplished in one stage.

The history, etiology and origin of pulsion diverticula were presented by Cottam,[4] a member of this society. Pharyngeal or pulsion is probably more correct than esophageal diverticula but the latter is still a freely used term, and because of popular usage is so classified by the *Year Book of Surgery*.

The force applied by the constrictor muscles of the pharynx causes a herniation of mucosa and submucosa through a constant area of weakness of the posterior pharynx in the presence of stricture, or a synchronous spasm of the muscles at the entrance to the esophagus. Fibers of muscle follow the herniated sac to a greater or lesser degree and can be adequately separated and used to reinforce the defect after removal of the herniated sac. This has been demonstrated by Kirschner[8] annd used effectively by us. An ingenious contrivance has been devised by Jackson to demonstrate the mechanics of the herniation. The weakened area posteriorly has been described by Killian,[7] Lord Moynihan and others.

Anatomically the fascial planes of the neck continue downward into the chest in such a manner that the interfascial spaces are continuous with those of the mediastinum. Spreading infec-

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tions involving these spaces of the neck rapidly produce a mediastinitis which is usually severe if not fatal. Rea,[11] working with Wangensteen in the study of the gases of obstruction, found that mediastinitis followed one-stage esophagostomy and transverse sections of the esophagus in dogs. Hofer[6] reports one case of mediastinitis with death in fourteen operations for diverticula. Certainly many unreported similar experiences must be the basis for its wholesome regard in esophageal surgery.

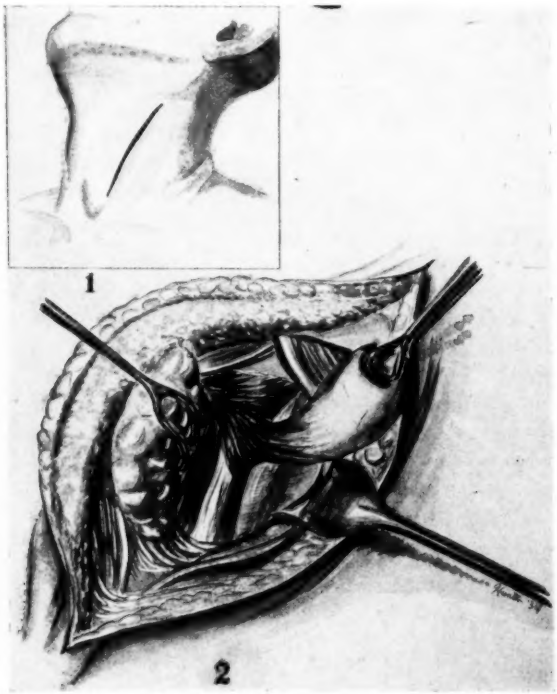

Fig. 1. Incision at the anterior border of the sternochleidomastoid muscle to approach the diverticulum.
Fig. 2. Thyroid retracted medially, great vessels laterally; esophagus and diverticulum freed.

Babcock,[1] in his *Surgery*, states, "To prevent mediastinal infection the operation should be done in two stages." However, in 1937 he (Babcock)[2] states that they have performed sixty-five one-stage operations and that he has seen no mediastinitis. Shallow[12] likewise advocated the one-stage procedure, while Harrington[5] advocated the one-stage operation in selected cases, namely small diverticula with a fairly definite neck. His figures, however, showed four two-stage operations to each one-stage operation.

Lahey[10] insists on adhering to the two-stage operation because of its security, based on low mortality, freedom from cellulitis of the neck, mediastinitis and the absence of complications.

The principles of surgical management have been based upon, first, removal of the sac, second, avoidance of infection with concomitant mediastinitis and, third, prevention of recurrence.

The method advocated by Goldman,[9] in which the neck of the sac is ligated with silk thread, the lower end of the incision packed with gauze and the silk thread and diverticulum allowed to slough off, incorporates the principles of the operation which we describe. The sac is not opened, the surfaces of the incision are not contaminated and, therefore, the element of infection is eliminated. Koenig recommends dissection of the sac and its attachment in an upward direction so that it drains rather than fills during the act of swallowing. In this instance, the sac is not removed and as a result, again contamination is eliminated.

Inversion of the sac into the esophagus has been recommended either through the use of purse strings or by intra-esophageal and extra-esophageal manipulation. With a small neck and some edema of the sac, inversion may be impossible. In one instance reported in which the inverted diverticulum became edematous and by its enormous increase in size threatened death to the patient, emergency removal of the swollen and partially gangrenous sac through the esophagoscope was necessary.

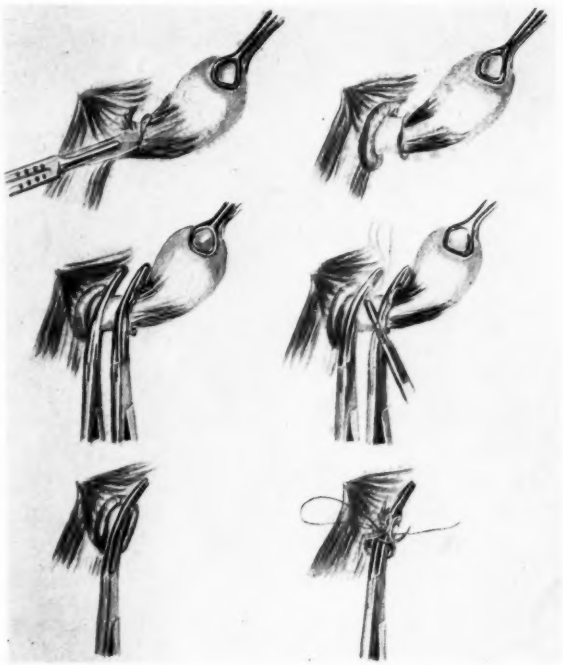

Fig. 3. Six illustrations in which the muscle and fascia surrounding the neck of the diverticulum are divided and separated back to form a cuff. The mucosa and submucosa are doubly clamped and the pedicle divided close to the proximal forceps by actual cautery. The muscle and fascia are sutured over the forceps, which is allowed to remain *in situ*.

The present-day trend of surgical management consists of removal of the sac in one or two stages. Babcock[3] and those associated with Jackson have advocated the one-stage resection, the sac being identified and its dissection facilitated by the use of the esophagoscope. The light may be introduced into the diverticulum if the opening is adequate and the limits of the sac visualized by its red glow. By very careful technic the sac is removed, the mucosa and submucosa carefully inverted and the rent reinforced by approximation of the muscle fibers. The patency of the esophagus is assured by suture of its wall over the esophagoscope. The chief objection to this procedure is that the neck of the diverticulum must be opened. Therefore, the wound is compounded and repeated instances of cellulitis of the neck are reported.

The two-stage operation advocated by C. H. Mayo, Lahey and subscribed to by numerous others has the distinct advantage that the sac is liberated and anchored in an upward direction in the neck but not removed. The wound, therefore, is not contaminated. The lower portion of the incision is packed with gauze which is allowed to remain until the mediastinum is entirely separated by adhesions and granulations. After an interval of ten or twelve days the sac may now be removed with safety because contamination of the wound is not followed by a spreading cellulitis. The two-stage procedure possesses two distinct advantages: (1) the elimination of infection, and, (2) improvement in

the patient's nutrition when the large overfilled diverticulum which has caused interference with the patient's swallowing is transplanted to an upward position. Such technicalities as careful preservation of the recurrent laryngeal nerves

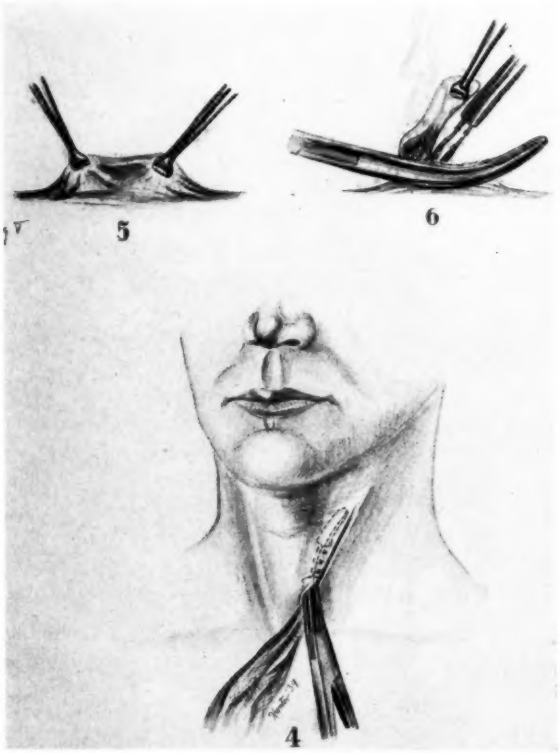

Fig. 4. A small gauze pack over the mediastinum escapes over the lower angle of the incision together with the forceps, which has been left across the stump of the diverticulum. The wound is closed throughout the rest of the incision.
Fig. 5. The lateral wall of the esophagus of a dog is lifted by two Allis forceps to make a tent.
Fig. 6. The overhanging tent-like portion of the esophagus is cut away by actual cautery, which was examined to be certain that it contained mucosa and thus be assured that we had opened into the esophagus. The forceps is allowed to slough off.

which lie in the tracheo-esophageal angle and prevention of narrowing of the esophagus should always be observed. Lahey has warned against undue division and ligation of large thyroid vessels, as occasional instances of fatal secondary hemorrhages have occurred.

We have chosen to present for your consideration a technical procedure which we believe possesses all of the merits of the two-stage operation, most important of which is elimination of wound contamination and infection but which may be accomplished by a single operation.

Case Report

A white man, aged forty-eight, came for treatment with the complaint that he has had increasing inability to swallow for about two years. He stated that he had had a gurgling in his throat which came on after eating. The condition had been growing progressively worse. At present besides the difficulty in swallowing he had to spit up a considerable quantity of food after eating. His impression was that solid foods passed more readily into the stomach than did liquids. There was no pain before, during, or after eating. His family history, personal history and past illnesses are essentially unimportant.

Examination revealed a well developed, well nourished male with a completely normal physical examination. X-ray examinaton with an opaque medium showed a pouch which filled completely and which measured 7.4 centimeters vertically by 4 centimeters laterally. After the pouch was completely filled the remaining portion of the food entered the esophagus normally.

Diagnosis.—Diverticulum of the esophagus.

Technic of operation.—A standard incision was made along the sternomastoid muscle, the thyroid was retracted medially and the great vesels laterally. The sac was identified and found to lie behind and to the left of the esophagus, extending downward into the superior mediastinum. It was dissected free to the attachment of its neck into the pharynx. The entrance to the mediastinum was carefully walled off with gauze and the muscle and fascial fibers which covered the proximal portion of the neck were separated by sharp and blunt dissection so that there was a definite cuff surrounding the stump. Two pairs of curved forceps were then applied to the neck and the sac divided close to the proximal forceps by actual cautery. This efficiently removed the sac, together with the distal forceps without any contamination.

It occurred to us that we have never hesitated to leave a forceps on the vessels in a difficult vaginal hysterectomy or in nephrectomies where ligation of a short pedicle or the condition of the patient seemed to indicate. As a result, the cuff, which had been carefully pushed back and preserved, was sutured over the forceps. The gauze packing was removed and the forceps only escaped through the lower angle of the incision. The forceps fell off on the sixth day and there was a persistent serous drainage for approximately one week. The wound healed completely by the end of three weeks and the patient made a normal, uneventful convalescence.

We have had only one opportunity to employ this procedure and we attempted to substantiate our experience by similar operations on laboratory animals in the Department of Experimental Surgery at the University of Minnesota.

The side of the wall of the esophagus of a dog was exposed and elevated like a tent by two Allis traction forceps. A curved forceps was then applied, the base and the points protruding beyond the esophageal wall similar to the technic recommended for the Kerr-Parker aseptic intestinal anastomosis. The protruding segment was removed by electrocautery and the removed portion carefully examined to be sure that it contained mucosa and thus determine definitely that the lumen of the esophagus had been entered. A gauze pack was placed over the superior mediastinum and the forceps allowed to escape with the gauze at the inferior angle of the incision. The forceps separated and fell off by itself at the end of five days. There was a small amount of watery drainage from the neck which persisted over a period of three days. The gauze was removed and healing was complete in eight days.

This procedure has subsequently been performed on three additional animals. In each one, the forceps separated spontaneously at the end of four to five days. There has been a watery fistula present for a period of three to eight days, but in no instance was there any cellulitis of the neck or mediastinitis. One of the animals has subsequently been sacrificed for other purposes and autopsy examination showed healing of the esophagus to be so complete that it was virtually impossible to determine the point from which the scallop of esophageal wall was removed.

The following graph shows the results obtained in four laboratory animals:

	Clamp Off, Days Postoperative	Fistula Dry, Days After Clamp Fell Off
Dog No. 1	5	3
Dog No. 2	5	7
Dog No. 3	5	8
Dog No. 4	4	4

Conclusions

Pulsion diverticula occur in people usually past middle life and may occur in individuals with concomitant heart disease, malnutrition, et cetera. As a result, we feel that a safe one-stage operation would have a decided advantage. We believe that the one-stage technic which we have presented possesses all of the elements of safety, particularly the elimination of mediastinitis.

NOTE—Subsequent to the presentation of this paper, Dr. Carl Rice and Dr. Clarence Arlander performed an operation by the same technic for diverticulum at St. Barnabas Hospital. The patient was extremely emaciated. The forceps fell off on the sixth day, the wound healed promptly and the patient made an uneventful recovery. She gained weight rapidly and has returned to normal health.

Dr. Owen Wangensteen, Chief of Surgery at the University Hospital, performed an operation at the University Hospital for diverticulum, likewise using the same technic as described in this paper. In this instance the forceps again fell off spontaneously, the wound healed in a few days and the patient made an uneventful recovery.

The series is now made up of three cases successfully operated by this method.

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POSTMORTEM FINDINGS IN CASES OF DIABETES*

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THE introduction of insulin not only has markedly reduced the number of deaths caused by diabetic coma, but it has made possible a dietary regimen which closely approximates normal physiologic requirements. Two results of such a revolutionary change in management may be expected. On the one hand, diabetic patients are allowed to live longer than they did before the discovery of insulin; therefore, more of them have degenerative complications of old age and other diseases common to the later decades of life. On the other hand, better nutrition and better control of their metabolic condition conceivably may oppose the development of complications to which such patients formerly were predisposed. While the literature already contains a valuable store of information concerning the pathologic changes associated with diabetes, the trends under new conditions can only be ascertained by the periodic appraisal of new material.

Material

The present study supplements the report of Wilder, which was based on the postmortem findings in eighty-one cases of diabetes. Most of these cases were observed in the pre-insulin era. Our report is based on: (1) a clinicopathologic study of 182 cases of diabetes which were observed in a period of about eleven years (October 1, 1925, to December 31, 1936, inclusive), (2) a microscopic study of the pancreas in 201 cases of diabetes, most of which are included in the 182 cases which have just been mentioned, and (3) a microscopic study of the pancreas in fifty consecutive cases in which patients who came to necropsy did not have diabetes. Necropsy was performed in 139 of 182 cases of diabetes in which clinicopathologic observations were made. Of the 201 cases of diabetes in which the pancreas was examined, twenty-five were observed in the pre-insulin era, that is, prior to 1923, and 176 were observed in the years 1923 to 1937, inclusive. The sections were stained with hematoxylin and eosin. In most cases two sections of the pancreas were available for study, one section of the head of the organ and one section of the tail. In the fifty cases in which the patients did not have diabetes the sections of the pancreas served as controls.

Clinicopathologic Data

In the 182 cases in which clinicopathologic observations were made, 106 of the patients were males and seventy-six were females. The ages of the patients ranged from one to eighty-nine years. In 91 per cent of the cases the patients were more than forty years of age and in 81 per cent of the cases the patients were more than fifty years of age. The average age of the patients at the time of death was 59.5 years, which is almost five years more than that reported by Wilder in 1926. During the period in which the 182 cases were observed, 5,478 new patients who had diabetes registered at The Mayo Clinic.

Events Which Constitute a Serious Threat in Cases of Diabetes

Diabetic Coma.—Table I summarizes the details regarding twenty-two cases in which the diabetes was uncontrolled at the time of death. It will be seen that coma was uncomplicated in only six cases and that in most of the six cases

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TABLE I. CASES IN WHICH PATIENTS WERE IN DIABETIC COMA AT THE TIME OF DEATH.

Case	Age, years	Sex	Associated pathologic changes	Comment
1	1	F		Moribund when treatment was started
2	7	M		Failed to respond to treatment
3	8	F		Diabetes resisitant to insulin
4	10	F		Failed to respond to treatment
5	10	F	Atrophy of suprarenal cortex	Failed to respond to treatment
6	28	M		Died elsewhere
7	30	M		Diabetes neglected; patient was a prisoner and was in coma many times
8	39	F	Hyperthyroidism	Died following thydroidectomy
9	43	F	Bronchopneumonia	
10	47	M	Exophthalmic goiter	Diabetes resistant to insulin
11	51	M	Diabetic gangrene	
12	52	F	Septicemia	
13	52	F	Vesicovaginal fistula	Fulminating onset of diabetes following operation
14	52	F	Cellulitis of arm	Refused hospitalization
15	55	F	Pyelonephritis	Moribund when first seen at the clinic
16	57	F	Gangrene	
17	67	M	Coronary occlusion	Diabetes resistant to insulin
18	67	F	Cellulitis of arm	
19	67	F	Coronary occlusion	Diabetes resistant to insulin
20	67	M	Hypertrophy of prostrate gland and uremia	Fulminating onset of diabetes following operation
21	68	M	Hypertrophy of prostrate gland and uremia	
22	71	F	Gangrene of leg; coronary occlusion.	

the patients were seen only after diabetic acidosis had been present for some time.

The incidence of coma in the 182 cases was 12.1 per cent. As should be expected, this was much lower than the incidence of 41 per cent in the series of cases reported by Wilder. As previously stated, most of the patients in Wilder's series of cases were observed in the pre-insulin era. Table I also shows the seriousness of such complications as acute infection and hyperthyroidism.

Overwhelming Infection.—In thirty-four, or 18.7 per cent of the 182 cases, an overwhelming infection was the primary cause of death. This figure does not include postoperative infections such as peritonitis, bronchopneumonia and infections of the blood stream, which are considered under the diseases for which surgical treatment was carried out. It does, however, include three cases in which gas bacillus infection of the stump followed amputation for diabetic gangrene. Erysipelas, bronchopneumonia, cellulitis and septicemia arising from superficial infections contributed mainly to the death of the patients in the thirty-four cases. The majority of the patients in these cases were well past middle age.

Tuberculosis.—For many years we have been struck by the infrequency of tuberculosis among

diabetic patients treated at the clinic. In only one case in this series was a positive diagnosis of active tuberculosis made, and in this case the diagnosis was made fortuitously. The patient had a carcinoma of the stomach that was associated with palpable cervical lymph nodes. One of these lymph nodes was removed for biopsy and was found to be tuberculous. In five additional cases the pathologist was able to demonstrate foci of active tuberculosis in what appeared to be healed pulmonary lesions. Similar lesions were reported in the hilar lymph nodes in four cases. In one case examination disclosed chronic tuberculosis of the pancreatic lymph nodes and in another case a tuberculous lesion was found in the liver. Some form of active tuberculosis, therefore, was encountered in twelve, or 8.6 per cent, of the 139 cases in which necropsy was performed, yet in none of these cases was tuberculosis the principal cause of death.

Degenerative Diseases.—Disease of the coronary vessels. Many authors have commented on the high incidence of degenerative vascular disease among patients who have diabetes. In 130 of the 182 cases the patients were more than forty years of age. The condition of the heart was noted at necropsy in all of these 130 cases. Coronary occlusion was the cause of death in fifteen, or 11.5 per cent, of the 130 cases. In these fifteen cases, nine of the patients were men and six were women. At the time of death the average age of the nine men was sixty years and that of the six women was sixty-five years.

Coronary sclerosis grade 3 or 4 also was present in fifty-three additional cases. In thirty-four of these cases the patients were men and in nineteen of the cases the patients were women. The mere presence of some sclerosis is an expected finding since it occurs among a high percentage of nondiabetic patients who are past the age of forty years. Including the fifteen cases in which death was due to coronary occlusion, coronary sclerosis grade 3 or 4 was present in sixty-eight, or 52.3 per cent, of the 130 cases. In these sixty-eight cases the diagnosis of severe coronary sclerosis was based on one or more of the following criteria: (1) recent or healed infarction of the myocardium, (2) fibrosis of the wall of the left ventricle, which is indicative of coronary insufficiency, (3) a history of angina pectoris, and (4) electrocardiographic findings, such as, for instance, bundle-branch block.

Willius, Smith and Sprague made a study of the incidence of coronary and aortic sclerosis in 5,060 consecutive postmortem examinations. They found coronary sclerosis grade 3 or 4 in 431, or 12.3 per cent, of the 3,513 cases in which the patients were more than forty years of age. Our series does not include a sufficient number of cases to warrant a comparison of the incidence of coronary sclerosis, according to the age of the patients, in the two series of cases, but there seems to be no doubt that the incidence of the severe forms of coronary sclerosis is significantly higher among diabetic patients than it is among patients who do not have diabetes. This has been borne out by the observations of Root, Bland, Gordon and White.

It is only fair, however, to say that in 870, or 17.2 per cent, of the cases reviewed by Willius, Smith and Sprague necropsy did not disclose any evidence of coronary disease. In 367, or 42.2 per cent, of the 870 cases the patients were in the first decade of life and in 795, or 91.4 per cent, of the 870 cases the patients were less than fifty years of age. Normal coronary vessels were not found in any of the cases in which the patients were in the eighth, ninth and tenth decades of life. The incidence of normal coronary vessels decreased as the age of the patients increased.

Diseases of the Peripheral Vessels.—A severe form of peripheral arteriosclerosis was present in fifty-one, or 28 per cent, of the 182 cases in which clinicopathologic observations were made. Gangrene or trophic ulcers occurred in thirty-one cases, and in twenty cases there was sclerosis of the vessels of the legs, which was of sufficient degree to cause clinical evidence of circulatory insufficiency. An analysis of the findings in the fifty-one cases furnished enlightening information. Since the changes in the two groups of cases differed only in degree, the cases will be considered as a single group.

Severe disease of the coronary arteries also was present in forty, or 78.4 per cent, of the fifty-one cases. Acute coronary occlusion was the primary cause of death in no less than fourteen, or 27.4 per cent, of the fifty-one cases.

In eighteen cases the patients died as a result of the gangrene. Details regarding the ocular fundi were available in thirty-six cases. In seven-

TABLE II. INCIDENCE OF SEVERE PERIPHERAL ARTERIOSCLEROSIS, ACCORDING TO AGE AND SEX, AMONG DIABETIC AND NONDIABETIC PATIENTS

Age, years	Diabetic patients		Nondiabetic patients		Diabetic men		Nondiabetic men		Diabetic women		Nondiabetic women	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
40 to 49	3	5.9	10	4.6	3	9.4	10	5.2				
50 to 59	14	27.5	51	23.3	11	34.4	48	24.9	3	15.7	3	11.5
60 to 69	20	39.2	96	43.8	9	28.1	83	43.0	11	57.9	13	50.0
70 to 79	13	25.5	49	22.4	9	28.1	41	21.2	4	21.1	8	30.8
80 to 89	1	1.9	13	5.9			11	5.7	1	5.3	2	7.7
Total	51		219		32		193		19		26	

teen, or 47.2 per cent, of the thirty-six cases examination of the ocular fundi disclosed either a central, punctate, diabetic retinitis or a mixed vascular and diabetic retinitis. Definite neurologic signs of peripheral neuritis were noted in nine of the fifty-one cases. The association of vascular disease, retinitis (especially a central punctate diabetic retinitis) and peripheral neuritis has been commented on by one of us (Dry[12]) in collaboration with Wagener and Wilder.

Whether or not there is an etiologic relationship between obesity and advanced arteriosclerosis is a difficult question to settle. The maximal weight was recorded in forty-two of the fifty-one cases. In twenty-six cases the patients had weighed more than 200 pounds (90.7 kg.) at some time.

It would seem that medium-sized muscular arteries, such as the coronary and tibial arteries, are particularly prone to undergo marked degenerative changes in cases of diabetes.[4] What we regard as of particular significance is the high incidence of severe arteriosclerosis among women who have diabetes. Table II shows the incidence of severe peripheral arteriosclerosis according to age and sex in fifty-one cases in which the patients had diabetes and in 219 cases in which the patients did not have diabetes. The 219 cases were included in the report of Hines.

This study and others reported in the literature suggest that something inherent in diabetes renders women particularly susceptible to degenerative changes in the vascular system. Such changes are especially likely to occur in cases in which the diabetes has been present for a long time. It is possible that an inherent defect or abiotrophy may exist in the vascular system and in the insulin-producing tissues and that when both structures are involved the physiologic process of aging may assume pathologic proportions.

Diseases of the Cerebral Vessels.—In nine of the 182 cases in which clinicopathologic observations were made death was due to a cerebral vascular accident, but permission to examine the brain was not obtained in a sufficient number of cases to provide information about the incidence of cerebral arteriosclerosis.

Associated Diseases That May Require Surgical Intervention

Cholecystic Disease.—In fifty, or 27.4 per cent, of the 182 cases gallstones were present or the patients had undergone an operation for cholelithiasis. In two of the fifty cases the patients also had acute cholecystitis. In another case, which is not included in the group of fifty, the patient had acute cholecystitis but did not have gallstones. The fifty-one cases in which there was a history or evidence of cholecystic disease may be divided into three groups. Group 1 includes fifteen cases in which the patients died following operation on the gall bladder or bile ducts.

Severe coronary disease was found at necropsy in three of these cases but it was not responsible for the death of the patients. Group 2 includes thirty-five cases in which gallstones were an incidental finding. In seven of these cases the patients died of acute coronary occlusion. In sixteen other cases the patients had severe coronary disease. The coronary arteries were relatively normal in the remaining twelve cases in this group. In the sixteen cases in which there was evidence of severe coronary disease, two of the patients died of a cerebral vascular accident and four patients died of gangrene of an extremity. Group 3 includes one case in which acute cholecystitis was associated with marked coronary sclerosis. Severe coronary sclerosis, therefore, occurred in twenty-seven of the fifty-one cases in which the patients had gallstones or acute cholecystitis. One would not for a moment claim a direct relationship between chronic cholecystic disease and arterial change even though both are in some way related to lipoid metabolism. The data show clearly, however, that in cases in which diabetes is associated with disease of the gall bladder the incidence of vascular disease also is high.

Malignant Disease.—Carcinoma was present in thirty-eight, or 20.9 per cent, of the 182 cases. The site of the carcinoma was as follows: pancreas in six, stomach in six, rectum or colon in ten, breast in six, genito-urinary tract in three, respiratory tract in three and in the liver and gall bladder in four cases, respectively. This incidence is much higher than that reported by other writers who have studied the postmortem findings in cases of diabetes. This may be attributable to the fact that a large percentage of patients who come to the clinic require surgical treatment, or it may be due to the fact that diabetic patients now live longer than they did formerly. In the eighty-one cases which formed the basis of Wilder's report, the incidence of carcinoma was so small that he failed to comment on it. A subsequent survey of his material disclosed one case of carcinoma of the pancreas.

Of particular interest is the relatively high incidence of carcinoma in recent reports of postmortem studies in cases of diabetes. As previously stated, carcinoma was found in thirty-eight of the 182 cases in which clinicopathologic observations were made. In six, or 15.8 per cent, of the thirty-eight cases the carcinoma involved the pancreas. According to McKittrick and Root carcinoma of the pancreas comprises only 4 per cent of all malignant tumors. Warren[13] reported that malignant lesions were found in forty-seven of 527 cases of diabetes in which necropsy was performed. In ten, or 21.2 per cent, of the forty-seven cases the malignant lesion originated in the pancreas. In four of the ten cases the development of the carcinoma antedated the development of the diabetes.

Pathologic Changes in Endocrine Glands Other Than the Pancreas

Thyroid Gland.—In twenty-seven, or 14.8 per cent, of the 182 cases in which a clinicopathologic study was made there was evidence of disease of the thyroid gland. Adenomatous goiter was present in twenty-four cases. In six of the twenty-four cases the adenomatous goiter was associated with hyperthyroidism and in two cases it was associated with acromegaly. A diagnosis of exophthalmic goiter was made in three cases. Thyroidectomy was performed in two of these cases. The postmortem report did not contain any special comment regarding the condition of the pancreas in these cases. Warren[15] did not find any especially characteristic lesion of the pancreas in cases of diabetes in which hyperthyroidism had been present for a long time.

Suprarenal Glands.—In one of our cases the patient, who was thirty-three years of age, died of classical Addison's disease. Necropsy disclosed marked atrophy of the suprarenal glands. In three other cases necropsy disclosed considerable atrophy of the suprarenal cortex. In the first of these cases the patient was a man, aged sixty-seven years, who died of coronary occlusion. Diabetic acidosis could not be controlled despite the administration of large doses of insulin. In the second case the patient was a man, aged twenty-nine years, who died after cholecystectomy. At the time of his death he apparently was in a state of shock; the value for the systolic blood pressure was 96 mm. of mercury and that for the diastolic pressure was 54 mm. In the third case the patient was a boy, aged ten years, who died in diabetic coma. Hyperplasia of the suprarenal cortex was noted in another case. The patient was a woman, aged seventy-one years,

who died of coronary occlusion and diabetic gangrene. In this case the acidosis could not be controlled.

portal vein. He had severe diabetes which had been discovered two years before his death. In both of these cases necropsy disclosed advanced

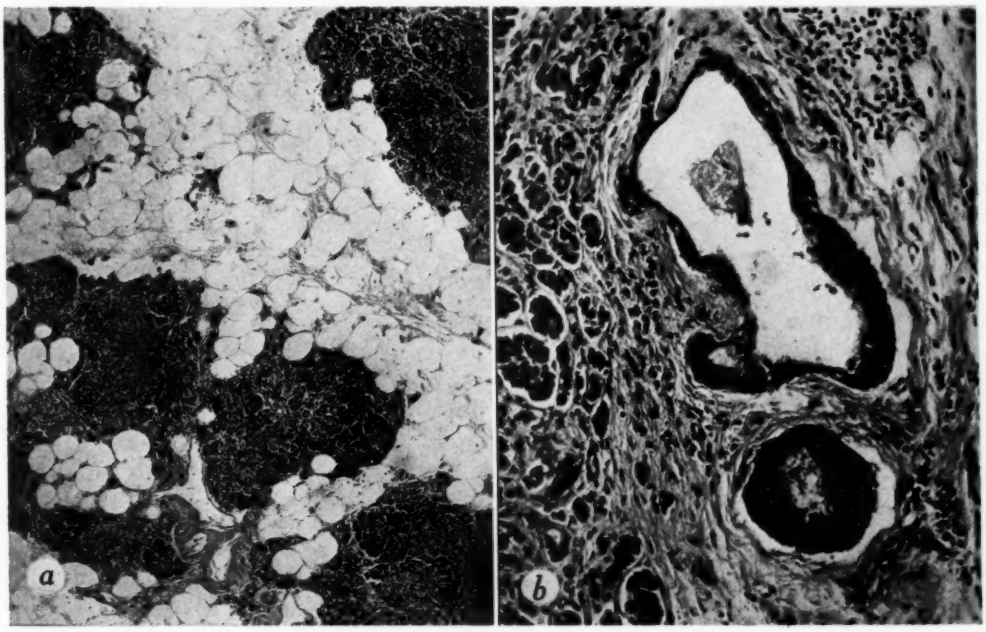

Fig. 1. *a*, Fatty infiltration of pancreas (x55); *b*, duct metaplasia; transition from columnar to stratified epithelium (x170).

Pituitary Body.—In considering the changes in the thyroid gland we said that acromegaly and adenomatous goiter were associated in two cases, in one of which there was clinical evidence of hyperthyroidism. Unfortunately, the number of cases in which the intracranial contents could be examined was small. No anatomic change of the pituitary body was observed. The brilliant studies of Houssay's and Young's experimental production of diabetes in dogs by the injection of extract of the anterior lobe of the pituitary body have prompted a careful study of this organ in cases of diabetes in which necropsy is performed, but thus far no changes of significance have been reported.[3,5,10]

Pathologic Changes in the Pancreas

Pancreatic Calculi.—Pancreatic lithiasis was encountered in two cases. In the first of these cases the patient was a man, aged fifty-four years, who had had severe diabetes for two years. In the other case, the patient was a man, aged forty-one years, who died of thrombosis of the

destruction and fibrosis of the pancreas. These changes no doubt were the result of obstruction and infection of the pancreatic ducts and secondary parenchymatous changes. In cases of pancreatic lithiasis it is probable, as Warren[13] and others have suggested, that despite damage to the acinar tissue the islands of Langerhans may be preserved for some time much in the same manner as they are in the pancreas of an animal after the pancreatic duct has been ligated.

Fatty Infiltration.—This lesion appears as large circular spaces near the vessels and scattered throughout the parenchyma (Fig 1*a*). It is obvious that extremely fatty regions would be avoided in preparing blocks of tissue for sectioning, but the lesion, when present, is probably an indication of acinar atrophy.

Pancreatitis.—This lesion is of two types: (1) interacinar, or diffuse, and (2) interlobular.

Metaplasia of the Pancreatic Ducts.—So-called metaplasia of the pancreatic ducts (Fig. 1*b*) was

noted in ten, or 5.7 per cent of the 176 cases. This incidence corresponds rather closely to that noted by Baló and Ballon. Warren[14] found this condition in nine of 484 cases. In our series of cases there was no evidence that the squamatization had caused occlusion of the pancreatic duct, but the sections were by no means sufficient to permit us to arrive at any definite conclusion.

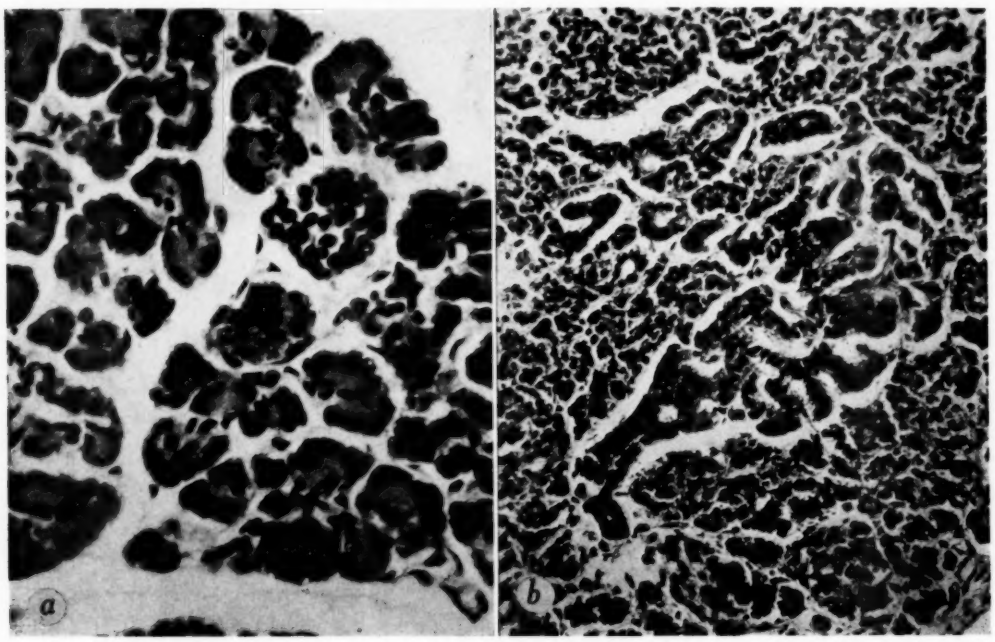

Fig. 2. *a*, Atrophy of islets (x430); *b*, so-called columnar or hypertrophic islets (x185).

Changes in the Islands of Langerhans.—Demonstration of typical changes in the islands of Langerhans in cases of diabetes mellitus has been the aim of many investigators. The object of this aim has been twofold: (1) to confirm the islet theory of the control of carbohydrate metabolism, and (2) to provide a microscopic method of diagnosis of this disease.

The results of extensive microscopic observations by many investigators may be summarized in a general way by stating that certain lesions of the islets are relatively, but not absolutely, diagnostic and that quantitative consideration of function should not be neglected. The latter necessarily implies ability to determine the presence or absence of function by the microscopic appearance of the islets. This determination has often been made without sound basis and it certainly has not been entirely successful.

In this study we made a special effort to observe the changes which had attracted the attention of previous investigators, and an attempt was made to compare these changes in the cases observed in the pre-insulin era and in the post-insulin era. Only certain changes were found to be significant in respect to these two groups of cases. This consideration will be limited chiefly to these changes.

Recent or old atrophy. The islets may be of normal size and be composed of cells with small hyperchromatic nuclei and with or without cytoplasm, or they may be small and compact (Fig. 2*a*) and be composed of small cells which at times are elongated and cells which contain small dense nuclei. In cases in which the cells contain small dense nuclei the postmortem changes offer the greatest hindrance to diagnosis. The presence of a few small dense nuclei, which were indistinguishable from true pyknosis, was encountered in both diabetic and nondiabetic tissue in a number of instances. The assumption that they represented postmortem changes was based

on the similarity to the histologic picture seen when pancreatic tissue was purposely left unfixed for periods which varied to as long as ten hours. Therefore, acute degenerative change was diagnosed only when extensive pyknosis of the islet cells was more or less uniform as regards the stage of development. This was necessary because an average of 7.2 hours had elapsed before the pancreatic tissue was fixed.

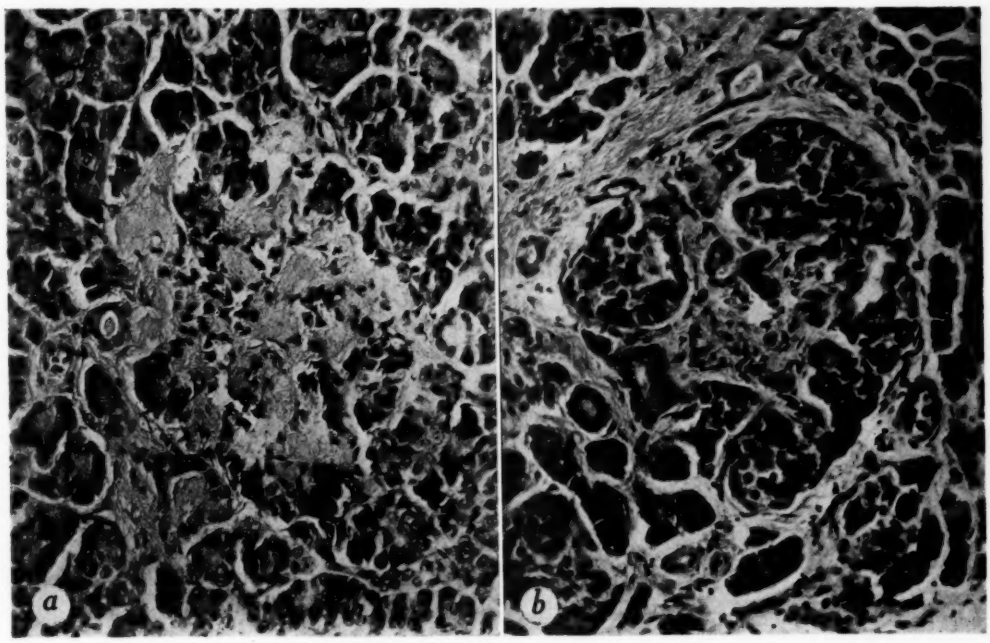

Fig. 3. *a*, Advanced hyalinization (x250); *b*, fibrosis (x235).

Hypertrophy.—The occurrence of so-called columnar or hypertrophic islets (Fig. 2*b*) was noted without reference to degree. It was felt that approximation of the proportionate amount of columnar and simple islet tissue would not be of any significance. The application of some relatively precise method, such as that of Ogilvie, to measure the amount of each type of islet tissue might lead to conclusions regarding the functional value of the columnar portion of the islets. However, what appear to be transitional forms between the columnar and simple islet tissue occur and are difficult to classify.

Hydropic Degeneration.—In our material hydropic degeneration in the stage of vacuolation of the cytoplasm was so effectively imitated as well as concealed by postmortem changes that no diagnostic significance could be attached to it. Hydropic degeneration is a reversible process[2] within certain limits, and only in cases in which diabetes is uncontrolled at the time of death can it be expected at necropsy. Even then it may be simulated by postmortem changes; although these changes may be identified by comparison with the adjacent acinar tissue and by the varying stages of apparent pyknosis, these criteria are by no means conclusive. Our inability to recognize the one lesion considered by many investigators to be of diagnostic significance in cases of diabetes mellitus, namely hydropic degeneration, was an early and definite conclusion.

Hyalinization and Fibrosis.—These changes are easily recognized. They require no comment other than to state that they are at times difficult to differentiate and to grade (Figs. 3*a* and *b* and 4*a*).

Lymphocytic Infiltration.—In our experience this change has been difficult to identify. While there frequently was definite evidence of lymphocytic infiltration in and about the islands of Langerhans (Fig. 4*b*), in many cases, particularly those in which the patients were young persons, there was a reasonable doubt concerning

its presence. Warren[16] expressed the opinion that this was the most characteristic lesion of the islands of Langerhans in cases of diabetes in which the patients were children.

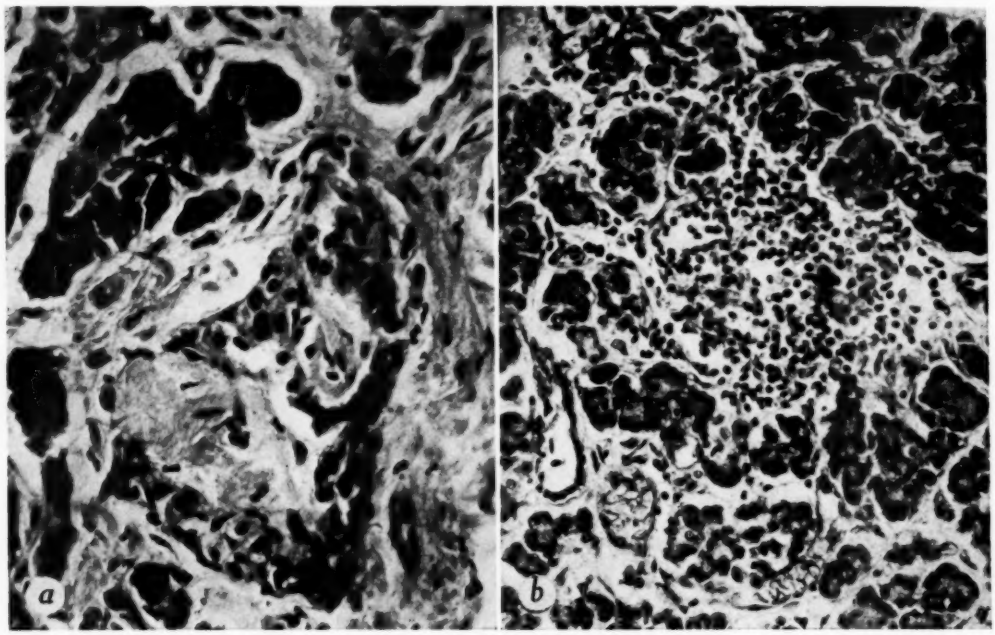

Fig. 4. *a*, Section showing the difficulty in determining the degree of hyalinization and fibrosis (x400); *b*, relation of lymphocytes to islands of Langerhans (x340).

Comment

One of the most interesting results of this study was the information gained by a comparison of the pathologic changes noted in the cases observed in the pre-insulin era and in the post-insulin era. The pathologic findings in these cases were checked with the findings in a control group of cases in which the patients did not have diabetes (Table III). In the cases of diabetes observed in the postinsulin era, the markedly increased incidence of atrophy, hyaline changes, and fatty infiltration, particularly in view of the lack of change in the incidence of pancreatitis, fibrosis and hypertrophic changes, may well be taken as an indication of increased degenerative changes and the results of longer life made possible by the administration of insulin.

Summary

This report is based on: (1) a clinicopathologic study of 182 cases of diabetes which were observed in the postinsulin era, (2) a microscopic study of the pancreas in 201 cases of diabetes, most of which are included in the 182 cases, and (3) a microscopic study of the pancreas in fifty consecutive cases in which patients did not have diabetes. In twenty-two cases the patients were in coma at the time of death; uncomplicated diabetes was present in only six of these cases. In the sixteen remaining cases hyperthyroidism or infection was present. Overwhelming infection, such as erysipelas, bronchopneumonia, cellulitis and septicemia, was the primary cause of death in thirty-four of the 182 cases. The incidence of advanced degrees of arteriosclerosis, especially of the medium-sized muscular arteries, in cases in which the patients were more than forty years of age was much higher than that reported for a series of nondiabetic patients of the same age. Our study revealed that the incidence of coronary sclerosis and arteriosclerosis of the extremities was higher among diabetic women than it was among nondiabetic women of the same age. The main reason for the higher incidence of serious vascular degenerative disease in the cases observed in the postinsulin era is the prolongation of life that results from the administration of insulin. This probably also accounts for the

TABLE III. POSTMORTEM FINDINGS IN CASES OF DIABETES MELLITUS OBSERVED IN THE PRE-INSULIN AND THE POSTINSULIN ERA AND IN A CONTROL GROUP OF FIFTY CASES IN WHICH THE PATIENTS DID NOT HAVE DIABETES

	No.	Postmortem findings and percentage of cases in which they were encountered							
		Atrophy of islets	Hypertrophy of islets	Hyalinization	Lymphocytic infiltration	Pancreatitis		Fibrosis	Fatty infiltration
						Interlobular	Interacinar		
Cases of diabetes observed 1914-1922	25	24	56	16	16	0	52	52	40
Cases of diabetes observed 1923-1937	176	44	48	39	5	8	50	48	71
Control group of cases	50	8	54	2	0	14	38	8	56

higher incidence of malignant disease and other diseases which commonly occur in the later decades of life. Carcinoma of the pancreas occurred with unusual frequency and the incidence of chronic disease of the gall bladder also was high.

Adenomatous goiter occurred in twenty-four cases. In six of the cases the goiter was classified as hyperfunctioning. Exophthalmic goiter had been diagnosed in three other cases. No significant findings were encountered in the pituitary body in the few cases in which this structure was examined. The number of cases in which the intracranial contents were examined was not representative.

Our results support the contention that certain lesions of the islands of Langerhans are suggestive but not conclusive in the pathologic diagnosis of diabetes mellitus. Our study also illustrates the inadvisability of generalization regarding any correlation of the microscopic appearance of the pancreas and the clinical severity or duration of diabetes. The microscopic study of the pancreas indicated that there was a relative increase in the incidence of atrophy, hyaline changes and fatty infiltration in the cases observed in the postinsulin era. These changes may well be considered dependent on the prolongation of life that results when patients are treated with insulin.

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BRUCELLOSIS*

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BRUCELLOSIS, a comparatively rare and little known disease of a few years ago, is gradually assuming an important and well recognized place in public health. The author well remembers that brucellosis was regarded as quite rare, a disease whose existence was considered only after most other diagnostic possibilities had been exhausted. Little did he expect to see ten cases within a period of eighteen months.

Brucellosis is still of minor importance to men practicing in cities where the milk supply is well controlled and where animal contacts are few. The importance of this disease is becoming more manifest to the doctor in farming communities, where, if the gradual increase of this disease is an indication, the incidence of Brucellosis will soon assume alarming proportions. The period of disability emphasizes the economic factor in this disease. Here lies the importance of more extensive public health control.

The history, etiology, and symptoms of brucellosis are common knowledge. The recognition of this disease occurred following the Crimean War and in 1863 Marston offered the first detailed description of "Mediterranean Remittent Fever." Bruce isolated the organism he named *Micrococcus melitensis,* by cultures from the spleen of a patient. The specific agglutination test was first offered by Wright and Semple in 1897. In 1904, the Mediterranean Fever Commission traced the disease to goats. Alice Evans, in 1918, found the Brucella and Bangs organisms to be the same.

This disease is caused by *Brucella melitensis, Brucella suis,* and *Brucella abortus,* depending on the variety found in goats, hogs, or cattle. The disease is spread rapidly from animal to animal with a complete lack of constitutional symptoms. The only manifestations of the disease are abortion and incomplete separation of the placenta. The organisms are found in lochia, products of abortion, urine, feces, and milk. Thus the avenues of spread are many. Some cattle with positive tests may not show other evidence of the disease. It has been estimated that 20 per cent of the cattle in the United States are affected. The lack of testing in hogs may account for the increased incidence of brucellosis among farmers and handlers of livestock. This lack of testing in hogs would also make the eradication of this disease among livestock all the more difficult—or well nigh impossible.

The incidence of brucellosis among handlers of livestock is much higher than might be expected. Pasteurization of milk for use as milk proper and milk products eliminates the possibility of spread through urban populations, except in those cases in which the milk supply is not so well controlled. In smaller communities pasteurization of milk is not carried out and therein lies one avenue of infection. The other avenues are the ones of paramount importance, however. The increase of the disease has come about in farmers, veterinarians, butchers, and livestock dealers. The possibilities for infection here are unlimited. Entrance to the body may come through breaks in the skin or by the oral route. Handling of abortion material in animals, of course, offers the richest field. Beattie studied a group of veterinarians, both students and practitioners. The incidence rose from zero in students who had not handled placentas to 26.2 per cent in veterinarians who had been in practice more than one year.

In 1922 the first epidemic of any importance in the United States occurred in Arizona. Since then the number of cases reported each year to the United States Public Health Service has increased. From only 112 cases in 1927, the number rose to 1,453 in 1930, and in 1937 to 2,497 cases. In Oklahoma the incidence has increased tremendously from two cases in 1930 to 431 in 1937. Only a portion of the cases are being reported since the chronic cases frequently go unrecognized. The reported deaths have not changed a great deal; 55 in 1930 and 58 in 1939. The only way to prevent further increase in infection is by control of the disease in animals. Cattle can be infected by varieties other than *Brucella abortus* and in similar manner can transmit the infection to man.

*Read before the annual meeting of the Southern Minnesota Medical Association, Red Wing, Minnesota, September 23, 1940.

Brucellosis is not a difficult disease to recognize if it is only borne in mind. This variety of clinical types, namely: (a) subclinical, (b) intermittent, (c) ambulatory, (d) relapsing, confuse the picture and it is for this reason that a great many cases go unrecognized. The incubation period averages about two weeks, though it may run from five to twenty-one days. The onset of the disease itself is generally insidious, but may be sudden. There is a progressive rise in fever with complaints of general malaise, chills, backache, abdominal pain, and weight loss. Examination may reveal only the fever, abdominal tenderness, leukopenia; and splenomegaly in about half the cases. Except for the aid of specific tests these signs and symptoms could be attributed to a number of conditions. Diagnosis may be confirmed by agglutination test, skin test, blood culture, and opsonophagocytic index. Of these the agglutination and skin test are carried out most easily. The agglutination test, as carried out by the State Board of Health, is considered by most authorities to be positive with an agglutination of 1.80 and upward. This positive reaction will occur within five to fourteen days of onset. The intradermal skin reaction is more valuable in those suspected cases in which the agglutination test is negative. This test is considered more reliable by some authorities. Huddleson, in a study of allergic skin tests on 8,124 individuals found 10.3 per cent to show allergic reactions indicating past or present infections. He felt that the agglutination test alone would fail to detect better than 80 per cent of these reactions. This skin test is carried out by the injection of a bacterial filtrate of Brucella origin, injecting .05 c.c. intradermally in the same manner as a Mantoux test. This test is also read in forty-eight hours.

These aids in diagnosis are especially important in the subclinical and chronic cases. Stress has been laid on the fact that many of the subclinical cases have been diagnosed as neurasthenia, a fact that is readily acceptable when one finds that the textbook description of neurasthenia fits that of Brucellosis, namely: exhaustion, insomnia, irritability, aches and pains. Brucellosis has also been confused with tuberculosis. The relationship between various orthopedic states and Brucellosis has been recognized for some time. Less than 10 per cent of all cases show a typical clinical picture for diagnosis.

The question of therapy has also been clarified considerably within the past few years. Among the various types of treatment suggested are artificial fever therapy, specific serum, intravenous dyes and sulfanilamide. The results from fever therapy have been none too encouraging although some good results have been reported both from the use of hypertherm and typhoid vaccine. Intravenous dyes have fallen by the wayside. Specific vaccine prepared from avirulent strains of *Brucella suis* or *abortus* has been used intravenously with reports of excellent results. Flippin reports the treatment of five patients with polyvalent antiserum, with good results in all five cases. He first tested the patients with 1 c.c. intramuscularly and if no reaction occurred in twenty-four hours, this was followed by six daily intravenous injections of 50 c.c. of serum given with 100 c.c. physiologic saline. This injection was allowed to take fifteen minutes time.

The most encouraging results in the treatment of Brucellosis have been reported by those using sulfanilamide and its derivatives. Some workers feel that the drug should be administered for one to two weeks after the temperature has become normal. It has been found that if therapy is discontinued too soon, relapse may occur. Improvement will begin to take place within three to eight days. Relapse has been reported two to three weeks after the interruption of treatment. Since Brucellosis is not a self-limited disease in a good many cases but may well continue into a chronic phase, therapy should be completely carried out. One author recommends short intermittent courses of sulfanilamide for two to three months after the fever disappears. Question might be raised as to the safety of this procedure.

Sulfanilamide was used in eight of the ten cases reported here.

In two of the ten cases triple typhoid vaccine was also used after use of sulfanilamide had been carried out for eight to ten days. After two bouts of fever these patients were returned to sulfanilamide therapy. The temperature soon dropped to normal and remained there. In five of these ten cases, it was found that the leukopenia became a mild leukocytosis after institution of sulfanilamide therapy. No differential counts were done. The white blood cell count after therapy was begun ranged from 8,400 to 14,000.

In one of the patients, sulfapyridine was substituted for sulfanilamide and used in the same manner as in the treatment of pneumonia. His temperature became normal within thirty-six hours and remained there. Sulfanilamide had been used for a period of eight days on this patient without any change in temperature.

Relapse was encountered in two of these cases. In one case relapse occurred twice, the first time two weeks after discontinuing sulfanilamide and the second time about three weeks after sulfanilamide had been discontinued. Temperature finally returned to normal and remained there. The sulfanilamide had been used for two weeks during each course of treatment. In this patient, the complaint of soreness and pain along the recti muscles was so severe, that some intra-abdominal lesion was considered. Soreness over the inguinal region persisted in this patient for six weeks after the temperature had returned to normal. Relapse in the second case was controlled more easily. Both patients eventually became afebrile.

All of the cases reported had definitely positive agglutination tests with dilutions ranging from 1:160 to 1:1280. In one case, that of a butcher claiming compensation, allowance of the claim as an occupational disease was made by the State Compensation Commission. All of the cases were acute, exhibiting a fever ranging from 101 to 103 degrees when first seen. The most common complaints were a feeling of chilliness and headache in the late afternoon and evening. Associated with these were symptoms of anorexia, malaise, aching, fever. Eight of the cases were handlers of livestock.

The only woman in the group was delivered of a healthy baby about fifteen months after the onset of fever. She too, had been treated with sulfanilamide. In the two patients who were neither livestock handlers nor milk drinkers, the source of infection could not be traced.

The local dairy was checked following the discovery of one case in town and it was found that out of a herd of thirty-two cattle there were twenty-one positive reactors to the Bangs' test. The fact that no other cases developed from this source is difficult to explain. Of course, as has been mentioned, many cattle may be positive reactors without having any other evidence of the disease. Mastitis with eventual contamination of the milk may not be present in many cases. Inasmuch as Bangs testing was not compulsory, suspected herds in only four of the cases were tested and found to contain positive reactors. In spite of the fact that they are well compensated for the loss of their stock, many of the farmers are none too coöperative. Only in breeding stock is careful testing being carried out regularly. The ease with which livestock is now transported, and the increased activities of traders and dealers, makes cross-contamination in herds a simple matter, and tracing of the source a more difficult one. The value of compulsory tuberculin testing in cattle is recognized by the farmer, but optional Bangs testing is not easily obtained.

Summary

1. Ten cases of Brucellosis are reported from a single small community within a period of eighteen months.

2. Eight patients were treated with sulfanilamide or sulfapyridine with good results.

3. There is an apparent increase in brucellosis among handlers of livestock.

4. More public health measures may be necessary to curb further increase in this disease.

SEMINAL VESICULITIS*

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THE importance played by the seminal vesicles in urogenital infections is not generally well understood. In recent years, the anatomical studies of the seminal vesicles and ejaculatory ducts made by McCarthy and his co-workers, and also the development of the instrument bearing his name have done much to establish a better knowledge of the pathology involved in seminal vesiculitis and to establish a rational method of treatment. Herbst and Merricks have done well to point out in their many excellent publications the satisfactory clinical results they

*From the Interstate Clinic, Red Wing, Minnesota. Read before the annual meeting of the Southern Minnesota Medical Association, Red Wing, Minnesota, September 23, 1940.

have obtained by catheterization of the ejaculatory ducts.

Almost all infections involving the prostate gland, both acute and chronic, also involve the seminal vesicles. The seminal vesicles depend on their drainage from the ejaculatory ducts vesicles to the lower ureter, obstructive symptoms of the upper urinary tract may exist. Hemospermia may attract attention to the seminal vesicles as a source of infection. Sterility in the male can, at times, be explained by this type of infection.

Fig. 1. Abscesses of left seminal vesicle.

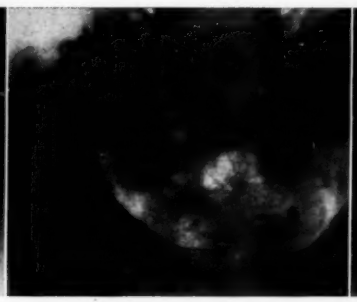

Fig. 2. Same patient as in Figure 1. Vesiculogram taken two months later. Drainage has taken place and massage given twice a week. Right seminal vesicle partially filled.

Fig. 3. Same patient after five months of treatment. Practically normal left seminal vesicle and vas deferens.

which course through the substance of the prostate gland to empty into the prostatic urethra. Because of the close proximity of the seminal vesicles to the prostate it is not difficult to see how organisms causing prostatic infection traverse the ejaculatory duct and enter the seminal vesicles. Often in acute prostatic infections the prostate gland becomes edematous and engorged, thus mechanically occluding the ejaculatory ducts. In chronic infections the ducts often are not patent due to fibrous adhesions or purulent plugs. When these circumstances exist the seminal vesicles become distended with purulent material and are found wanting for adequate drainage.

The organisms which most often cause seminal vesiculitis are staphlococci and colon bacilli. Undoubtedly these organisms, in many cases, come as secondary invaders to gonococci.

The symptoms of seminal vesiculitis are variable and depend, to some degree, on the amount of pus trapped in the seminal vesicles. Also the symptoms may be intermittent due to partial drainage of the seminal vesicles. Recurrent attacks of unilateral or bilateral epididymitis are pathognomonic symptoms. Indefinite, lower abdominal pain, backache or perineal pain, itching or a crawling sensation in the perineum may all be manifestations of infected seminal vesicles. Because of the close relationship of the seminal

Patients suffering from seminal vesiculitis often have had prolonged treatment by prostatic massage, urethral dilatations and instillations. The urine, perhaps, has been intermittently cloudy and clear, which, in some cases, indicates the amount of drainage from the seminal vesicles. Very often a patient will give a history of epididymal pain following massage. When the ejaculatory duct is plugged, massage churns up the infection and causes pus to travel down the vas deferens to the epididymis.

As was stated previously the method of treatment is one of adequate drainage. Vesiculotomy and vasotomy have now been replaced by transurethral catheterization of the ejaculatory ducts. This is accomplished by use of the panendoscope with the McCarthy attachment. This instrument permits small catheters or bougies to be introduced into the ejaculatory ducts. Through these catheters pus may be aspirated to determine the causative organism. It is not an uncommon experience after catheterizing the ejaculatory ducts to find pus emerging from the catheter. Also visualization of the vesicles is accomplished by injecting opaque media, such as diodrast, into the catheters and making roentgenograms of the vesicles. Such visualization gives one information as to the presence of abscesses in the seminal vesicles and, in some cases, the patency of the vas deferens. Medication such as silver nitrate

may be introduced through the catheter to lavage out the vesicles.

This procedure is carried out under local anesthesia of 0.5 per cent cocaine, or caudal block using 1 per cent novocaine. A panendoscope with the McCarthy attachment allows ureteral catheters to be directed down, back and inwardly into the ejaculatory ducts. Buckling of the catheters is obviated by introducing piano wire into the lumen of the catheters to give them support. The ejaculatory ducts are approximately 2.0 to 2.5 cm. in length. The arrangement of the ejaculatory ducts vary, depending on the depth of the utricle. In some instances it is difficult to ascertain which duct is being dilated before taking roentgenograms. To visualize the seminal vesicles 2 c.c. of diodrast is usually sufficient to inject into the catheter to obtain a satisfactory roentgenogram. The ejaculatory ducts are catheterized separately as it is not possible to insert two catheters simultaneously. Generally speaking, little or no reaction follows this procedure. However, it should be emphasized that it is usually necessary to dilate the ejaculatory ducts several times to establish adequate drainage.

Case Report

R. L., age twenty-nine, was first seen in January, 1940, complaining of recurrent attacks of bilateral epididymitis, backache and a crawling sensation in the perineum. He stated that the symptoms began six months previously. There was no history of gonorrhea. The urine was slightly cloudy and microscopically there were 8 to 10 pus cells per low power field. The prostate and seminal vesicles were rather soft, boggy and tender. A diagnosis of chronic prostatitis and seminal vesiculitis was made. Massage, twice a week, for a period of eight weeks gave no relief. In April, 1940, the ejaculatory ducts were catheterized and pus aspirated through the catheters. The seminal vesicles were visualized (Fig. 1), and dilatation of the ejaculatory ducts was carried out on several occasions (Figs. 2 and 3) at intervals of one month. The last vesiculograms appeared to be normal. The patient is symptom free except for a slight pain at times in his right epididymis.

Summary and Conclusions

1. Prostatic infection and seminal vesiculitis are closely associated.
2. The seminal vesicles depend on drainage from patent ejaculatory ducts.
3. Transurethral catheterization of the ejaculatory ducts with visualization of the seminal vesicles provides a means of determining the extent of disease present and allows drainage of the seminal vesicles.
4. A case which was successfully treated is reported.

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◆ CASE REPORT ◆

AN INTERESTING CASE OF TRICHOMONAS VAGINALIS IN THE MALE

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In most cases of trichonomas vaginalis in the male, either a urethral discharge or burning in the urethra at the end of urination and frequency of urination are present and it is these symptoms which cause the patient to seek medical advice.

In the case to be reported none of the above-mentioned symptoms were present, in fact, the patient never knew that he had this infection, but came on account of sterility. A routine examination of the prostatovesicular secretion obtained by massaging the prostate and stripping the seminal vesicles showed numerous live typical trichomonas vaginalis.

The patient was a dentist who did much x-ray work without any protection of his testicles. He was referred to me on account of sterility. He had been married three years, and his wife had had a child with a previous husband about seven years ago. He also complained that emission comes some time after orgasm, otherwise his coitus is normal. A condom specimen was examined about four years ago, and he was told that it showed motile spermatozoa but he did not know whether the number of spermatozoa was normal. His penis, testicles and prostate appeared normal to palpation. The expressed fluid however showed some spermatozoa most of which were dead and those that were alive showed only feeble motility.

(Continued on page 144)

HISTORY OF MEDICINE IN DAKOTA COUNTY

Biographies

(Continued from January issue.)

O. A. Beal located in West Saint Paul about 1896. He had previously practiced in Saint Paul. He was a graduate of Long Island College Hospital (1882). He served as a county physician for Dakota County.

J. G. Bemis came to Farmington from New York City in the fall of 1867. It is uncertain how long he practiced there.

T. N. Berlin was a homeopathic physician of Empire where he located in the latter sixties.

Robert Blakeley was the first practicing physician in Nininger Village, according to the county history by Franklyn Curtiss Wedge.

J. D. Brundage came from Naugatuck, Connecticut, and practiced in Hastings and in Lakeville toward the end of the seventies.

J. P. Caldwell was born in Illinois in 1848. At the age of sixteen he entered the army and served until the end of the war. He graduated from the Bennet Eclectic Medical College in 1874 and a few years later he came to Minnesota. He practiced medicine in Lakeville from 1882 until 1889, when he moved to Saint Paul.

Charles Cappellen, formerly of Brandon, Minnesota, opened an office in Hastings in 1899. He had the habit of advertising, modestly but persistently, in the newspapers.

R. E. Cavanaugh was graduated from Rush Medical College in 1894 and practiced in Hastings the following year.

F. D. Chapman, a homeopath, came to Hastings in 1870.

W. H. Cooke located in Lakeville in 1891. He served several terms as a county physician and as coroner. He was a graduate of Queen's College, Kingston, Canada (1888).

D. J. Cummings graduated from the Chicago Medical College and came to Farmington in the fifties. His professional card appeared in the *Dakota Weekly Journal* in June, 1856, but he may have come earlier. In 1871 he reported a case of leprosy which created considerable excitement in the locality. He later practiced in Hastings, Waseca and Northfield for short periods and then returned to Farmington in 1877. He was instrumental in the organiza-

tion of the Dakota County Medical Society and was an active member of both that and the state society.

J. Davidson, an eclectic physician, practiced in Hastings in 1868.

A. C. Dockstader, a homeopath, graduated in 1880 from Hahnemann Medical College and located at South Park, Dakota County. He practiced at various times in Granite Falls, Red Wing (1886), Minneapolis (1887-1889) and Saint Paul (1892-1896). The intervening periods were spent at South Park, Dakota County. He served as a county physician.

Levi P. Dodge was born in Sunapee, New Hampshire, in 1839. He was left an orphan at the age of six months and cared for himself from the time he was eight years old. At the age of twenty-two he began to study medicine with Dr. S. M. Whipple of New Hampshire. He enlisted in the New Hampshire Volunteers in 1861 and was given a position as hospital steward. He was at the second battle of Bull Run, Antietam and Fredericksburg but was discharged in 1863 because of ill health. He received a diploma from Dartmouth the next year and after practicing in New Hampshire for a short time he came to Farmington in 1865. His professional card, typical of the early physicians, announced that calls would be "promptly attended to, whether by day or night and 'no postponement on account of weather.'" He was a charter member of the Dakota County Medical Society, serving as president in 1878, and a charter member of the Minnesota State Medical Society. He was a member of the school board of Farmington for twenty years and served also on the board of control for the state public schools for dependent children. His death occurred in September, 1893, following an operation for cancer of the bladder.

William M. Dodge began to practice in Farmington about 1894. He often served as a county physician.

W. R. Endris of St. Louis practiced in Hastings in 1887.

F. B. Etheridge located in Hastings in May, 1860, having had, according to his professional card, thirty years' experience in his profession. During the war he was a surgeon with the rank of major in the Fifth Regiment of Minnesota Volunteers. He was taken prisoner near Corinth, Mississippi, and returned to Hastings in 1862 to resume his practice. He served as county physician, was a charter member of the county medical society and became affiliated in 1870 with the state society. He died in 1874.

J. H. Etheridge was a professor of Materia Medica and Medical Jurisprudence at Rush Medical College in 1869. The newspapers refer to him as being "formerly of Hastings." He died in Chicago in 1899 of heart disease.

Warren C. Eustis was born in 1847 in Boston, Massachusetts, and in 1855 moved to Minnesota with his parents. He attended the state university and was one of its first graduates. He received his medical training at the University of Michigan and the Bellevue Hospital Medical College, from which he obtained his diploma in 1877. He practiced in Farmington until 1891 when he moved to Owatonna and specialized in eye and ear work. He was a versa-

tile linguist, being able to converse with his patients in English, German, Norwegian, Danish and Swedish. He was a member of the Dakota County Medical Society, the Steele County Medical Society and the state medical association.

C. A. Faulkner practiced in Rosemount in 1900 and was in that year appointed county physician. He was a graduate of the Bennett Eclectic Medical College.

A. A. Finch began practice with his father, J. E. Finch, in Hastings in 1891. In 1894 he opened an office in Rosemount and divided his time between that town and Hastings. Shortly afterwards he moved to Blooming Prairie. He was a graduate of the University of Minnesota and had received his medical training at the University of Pennsylvania (1891). He was elected Dakota County coroner in 1892. He was a member of the National Association of Railway Surgeons, the pension board, and the Steele County Medical Society.

Jeremiah E. Finch was born in Ontario in 1829. He came to Hastings in 1856 having previously practiced in Illinois and Wisconsin. In 1862 he was appointed a surgeon with the rank of major in the Seventh Minnesota Infantry and the next year he returned to Hastings where he became one of the leading practitioners. He ran a drug store which he established early in the sixties and which later was known as Finch and Son. He was a member of the local hunting club, a Mason and a Knight Templar. In 1866 he was elected mayor of Hastings and he served a long term as the president of the Hastings school board and in other public offices. He was one of the first members of the county medical society organized in 1870 and served as its president in 1875 and in 1876. He was a charter member of the Minnesota State Medical Society and its president in 1878. In 1886 he was appointed physician for the Chicago, Milwaukee and Saint Paul Railroad.

Julius C. Fitch, a graduate of Rush Medical College (1866), was one of the early physicians in Hastings. He was among the first members of the county medical society and served as county physician, health officer for Hastings, and president of the Hastings school board. In 1871 he was elected to membership in the Minnesota State Medical Society.

Thomas Foster, a pioneer physician in Dakota County, was a man of varied abilities. He visited Olive Grove, the present site of Hastings, in 1850 and the next year built a home for himself which, excepting the trading station, was the first house in that vicinity. In 1852 he was appointed physician to the Sioux Indians. He was the editor of a newspaper, the *Minnesotan,* published first in Hastings and later in Saint Paul and Duluth. Besides practicing medicine he also was state librarian, a member of the constitutional convention, and private secretary to Governor Ramsey under both territorial and state administrations.

Doctor Foster was born in Philadelphia in 1818 and died in San Francisco in 1903.

C. P. Fuller came to Hastings at the age of fourteen. He entered the drug business and continued in it until about 1869 when he went to Philadelphia to study medicine. Returning to Hastings he again followed the drug business until the fall of 1874 when he went to Granite Falls, Minnesota, to prac-

tice. He died of gangrene poisoning in August, 1879, at the age of thirty-nine. He was a member of the Dakota County Medical Society.

W. W. Furber, a graduate of Rush Medical College, practiced in partnership with Dr. C. P. Adams in Hastings from May, 1878, until August, 1879. He later practiced in Cottage Grove, Washington County. He was elected to the Minnesota State Medical Society in 1878.

William Gibson practiced in Hastings in 1856.

R. F. Goodwin practiced with Dr. C. P. Adams in Hastings in 1869 and later moved to Cannon Falls, Goodhue County.

Elizabeth Graves was legally authorized to practice under the "years of practice act." She lived in Hastings during the eighties.

James Gravelly, a German physician from Iowa City, Iowa, came to Hastings in 1887. Apparently he did not stay long. Two years later he was in Young America. He was graduated from Iowa State University in 1887.

Henry Hahn located in Hastings in 1884. He practiced under an exemption certificate and previously had lived in Young America. In 1887 he served as city health officer and as county physician. The following year he opened an office in Saint Paul and several years later moved to Saint Cloud.

E. W. Hammes was born in Wisconsin in 1854. He graduated with honors from Rush Medical College in 1882 and practiced at New Trier and at Hammond in Dakota County. In 1900 he went to Chicago to take some postgraduate work. He served several years as a county physician. About 1926 he retired from practice and moved from Dakota County to Saint Paul. He died in October, 1934.

E. Hammond was born in Connecticut in 1819. He went to River Falls, Wisconsin, in 1855 and two years later came to Waterford where he lived on his farm, with the exception of two years spent in Minneapolis, until his death.

A. H. Hanchette was one of the pioneers of Hastings. He was an eye and ear specialist, according to his card, and was for a time associated with Dr. Wm. Thorne. He was elected the first mayor of Hastings in 1857 but resigned from the office and soon after left for the East. In 1864 he served as geologist for the State of Minnesota.

G. H. Hawes was born in Massachusetts in 1832 and in 1855 came to St. Anthony, Minnesota, where he engaged in mercantile pursuits and the lumber business until about 1866, when he began to study medicine with Dr. C. G. Higbee of Red Wing. He graduated from the Hahnemann Medical College of Chicago and after three years of practice in Iowa, located in Hastings in 1876, where he became one of the leading homeopathic physicians. He served as secretary of the Minnesota State Homeopathic Institute in 1881 and 1882. He died in 1892 of cancer of the mouth and throat.

A. B. Hawes of Hastings was graduated from the Hahnemann Medical College in 1890 and located at Elk Point, South Dakota. In 1892 he returned to Hastings and took over the practice of his father, Dr. G. H. Hawes, during the latter's fatal illness. He remained somewhat over a year. He was a member of the state homeopathic society.

V. J. Hawkins practiced in South Saint Paul and served as a county physician for Dakota County in 1889. He was a graduate of Rush Medical College (1881). He now resides in Saint Paul.

P. A. Heitz was born in Germany in 1820, received his medical degree in 1846 from the University of Heidelberg and practiced there until his coming to the United States a year later. He spent one year in Ohio and practiced for a while in Hannibal, Missouri. He was a member of the Marion County Medical Society (Missouri) and vice president of the State Medical Association of Missouri. He came to Hastings in 1880 where he was for a while collector of assessments for the Detroit Mutual Benefit Association. He served as county physician and finally established himself as one of the leading practitioners of the town. He was elected to the Minnesota State Medical Society in 1883. In 1886 he moved his office to West Saint Paul. His death occurred in Saint Paul in 1888.

Joseph George Hodgkinson was born in Ontario, Canada, in 1845. He was graduated in 1879 from the Detroit Medical College and he also attended the medical college of the University of Michigan. From 1880 to 1882 he was treasurer of the Pension Board of Examining Surgeons at Detroit, Michigan. The following year he came to Saint Paul where he attended the Saint Paul Medical College. He practiced at Battle Lake, Taylors Falls, St. Croix Falls, and Saint Paul. In 1895 he opened an office in South Saint Paul. In 1897 and 1899 he served as a county physician.

Hartland C. Johnson came to Farmington from Northfield in 1885. He graduated from the Chicago College of Physicians and Surgeons. He later moved to Saint Paul.

W. F. Kertson practiced at Mendota in 1886 and 1887. He was a graduate of the medical department of the University of Victoria, Canada (1882).

L. M. J. Leonard came to Hastings in 1870 from Kenosha County, Wisconsin.

R. L. Marvin was one of the pioneers of Hastings. He came in the early sixties and ran a drug store for many years. In 1875 he was elected to membership in the Dakota County Medical Society and served as both secretary and treasurer of the organization for several years.

W. W. Memminger practiced in Rosemount in 1899 and served as a county physician.

C. F. Miller practiced in Hampton in 1899.

A **Dr. Munson** practiced at Pine Bend near Inver Grove during the latter sixties and early seventies.

A **Dr. Nichols** practiced with Dr. C. C. Righter in Hastings in 1863, having previously practiced in Prescott. This may be the same as the Dr. Ziba Nichols who was also in Dakota County in the sixties.

A. G. Phelps was a homeopath who practiced in Hastings in the latter nineties. He was a member of the state homeopathic society.

Horace Phelps, according to Neill and Williams' history of Dakota County, came to Lakeville in 1856.

T. G. Potts came to Castle Rock in 1856 and practiced there until 1863.

C. C. Righter, a homeopathic physician, located in Hastings in 1862. About 1868 he went to Faribault for three years and then, after another period in Hastings, again went to Faribault in 1879.

Peter Schneider began practice in Hastings about 1890. In 1894 and 1895 he was very active in the office of city health officer. In 1897 he received a diploma from the Wisconsin Eclectic Medical College. After a trip to Germany in the summer of that year, he moved to Saint Paul.

F. P. Shillock (*see* History of Medicine in Carver County).

J. Dennis Smith, a graduate of the University of Pennsylvania, came from Philadelphia in July, 1870, to practice in partnership with Dr. C. P. Adams of Hastings. He was one of the charter members of the county medical society. He returned to Philadelphia in 1871.

Jenks S. Sprague was born in Otsego County, New York, in 1800. He graduated from the College of Physicians and Surgeons of Western New York and after practicing in Schoharie County for a few years he became a partner of Dr. Naboth Buckingham of Exeter, with whom he had formerly studied. In 1854 he returned to Otsego County where he remained until 1863 when, his health failing, he came to Hastings, Minnesota, to retire from active practice. In 1854 he served as president of the New York Medical Association and was greatly influential in legalizing the practice of dissection in that state. He was also a member of the American Medical Association and a member of the New York state legislature (1853). He served as president of the Dakota County Medical Society from the time of its organization until 1874 and was the first honorary member to be elected to the Minnesota State Medical Society. The many positions of honor which he held bear witness to the esteem in which he was held both as a physician and as a man.

Otto Stannis, a homeopathic physician, located in Hastings in 1859. He had received his education in Germany and had practiced in both that country and this before coming to Minnesota.

A **Dr. Straussman** divided his time between Hastings and Stillwater in the latter seventies. His qualifications as a physician are unknown.

Wilfred O. Tessier was graduated from the College of Physicians and Surgeons, Minneapolis, in 1887, and located at Mendota. He opened a drug store there in 1889.

William Thorne, one of the well established and one of the oldest practicing physicians of Hastings, was born in Devonshire, England, in 1820. He came to New York State in 1834, studied with several physicians and took a preliminary course of lectures at Buffalo College in 1847. After practicing for a year and a half he returned to Buffalo and received his degree of Doctor of Medicine in 1850. In 1856 he came to Hastings where he established a drug store. He was one of the first members of the county medical society, of which he was president in 1874 and in 1877, and also a charter member of the Minnesota State Medical Society. He served several terms as county physician and was a member of the pension board. About 1899 he and his wife moved to Covina, California.

A **Dr. Thompson,** a graduate of the University of Pennsylvania, for a time in the late fifties was associated with Dr. Thorne of Hastings. He also practiced for a time at Hudson and Superior, Wisconsin.

W. H. Thurmond, a physician from Dowville, Iowa, practiced in Rosemount in 1879. About 1881 he moved to Brownton, McLeod County, and then to Athens, Georgia (1885).

A **Dr. Torgerson** was a practicing physician in Empire in 1868. He also ran a dry goods store.

James M. Tucker began to practice in Hastings about 1886. He was an enthusiastic member of the Loyal Legion and the G. A. R. and filled various offices in the latter organization. He served as health officer in Hastings for several terms, and for many years was a county physician. He was also appointed to the pension board (1891). He was a member of Company E of the National Guard.

Henry Van Beeck opened an office in Hastings in 1889, two years after his graduation from Rush Medical College. He was elected county physician and health officer for several terms. He also served as coroner and as a member of the pension board. He was affiliated with the State Medical Society.

H. D. L. Webster, a homeopath, came to Hastings to practice in 1867. Previously he had practiced in Winona and a year later he moved to Little Rock, Arkansas.

Robert L. Weems, physician and surgeon, came to Hastings in 1867. For many years he ran a drug store there. He was a charter member of the Dakota County Medical Society.

J. M. Whipple came to Hastings in 1857. According to his professional card he specialized in ophthalmic surgery. He also sold drugs and medicines.

Thomas S. Williamson (*see* "The Missionary as Practitioner," MINNESOTA MEDICINE, October, 1940).

William Willson was a practicing physician in Hastings in 1868.

(To be continued in March issue.)

President's Letter

YOUR COMMITTEE APPOINTMENT

THE Minnesota State Medical Association is made up of approximately two thousand six hundred members working through a setup which calls for officers and committees. These committees are again subdivided into scientific, non-scientific, and those on medical economics; as fine a democratic enterprise as can be found in any organization of a similar nature.

These committees cover every phase of economic and scientific endeavor in which medical men can be interested, and to be appointed to a committee should be, and can rightly be, considered an honor. But such honor is of no value unless a man feels the necessity of lending not only his support but his presence at committee meetings. The Association needs every man's constructive view in committee deliberations, especially in these momentous times. Once a man gets into the swing of medical thought in this state, he will miss the enthusiasm of committee contacts if unable to attend.

Medical education is not only undergraduate but must continue through a medical man's entire professional life as shown recently in the deliberations of the Committee on Child Health, when there was a thorough discussion of the plan for the course on The Problems of the Premature and Unborn Infants at the University. An enthusiastic committee meeting with much constructive thought resulted.

The survey of human tuberculosis and its follow-up in Meeker County, Minnesota, was outlined under the supervision of the Committee on Tuberculosis at their monthly meeting with the physicians of the locality in Litchfield. When completed, this will bring national recognition and be of untold benefit to the people of our state.

That we are vitally interested with the Minnesota Safety Council in the prevention of accidents, especially those of motor vehicles, was brought out forcefully at the annual meeting of this Council when it was shown that heart disease, 24.7 per cent, cancer 13.6 per cent, and cerebral hemorrhage 8.5 per cent, are followed a close fourth in Minnesota by accidents, 7.7 per cent, as the cause of death. Our Committee to Study Motor Vehicle Accidents can well be an integral part of their state-wide setup. Preventive surgery is its aim.

Outside of organized medicine, but still a very closely affiliated corporate part, is the National Physicians' Committee for the Extension of Medical Service. It is fundamental that we recognize immediately the need of supporting this committee in its work of acquainting the public with the gains in medical practice and the necessity of the patient-physician relationship as against state controlled medicine. An investigation of its work not only makes one enthusiastic about but a financial supporter of this worthwhile endeavor.

An exchange of ideas in local societies will soon wear away the barrier of indifference and each individual, as well as the society as a whole, will be the gainer; but each one should attend his committee appointments without fail. Democracies are controlled by the associational ideas which are freely given in committee or other similar bodies deliberating for the good of the whole. There is something of interest happening which you lose by not attending. Your committee chairman and the officers need your help as well as criticism. Dictators or inside cliques will find no place in any association where well functioning committees are found.

B. J. BRANTON, M.D., *President*
Minnesota State Medical Association

EDITORIAL

MINNESOTA MEDICINE

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BUSINESS MANAGER
J. R. BRUCE

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TREACHEROUS TUBERCULOSIS

ATTENTION is called to an article by Laird in this number of MINNESOTA MEDICINE which merits emphasis aside from the Malmros-Hedvall concept described therein.

It is another appeal for the detection of early tuberculosis of the lungs, pointing out again that contacts furnish the richest source of potential disease. It is a warning that beginning tuberculosis in the main produces no symptoms. It demonstrates how frequently these early, symptom-free lesions may go for months to a year or more before giving symptoms. It teaches that in many instances there are no distinctly differentiating characteristics between primary phase tuberculosis and reinfection phase tuberculosis and that most certainly all primary phase lesions are not benign as many observers have been insisting.

It is also clear from the material which Laird presents that, as in the treatment of pulmonary tuberculosis so in the correct clinical interpretation of the early latent lesion, time is the essence of the contract as prolonged observation is often necessary.

Two additional points may well be stressed. First, that not infrequently outspoken clinical disease may develop in but a few weeks subsequent to an initial infection. This occurs not only in infants but in adults as well. Second, that some of these minimal reinfection phase lesions with no treatment will disappear or fade out to the point of becoming fibrous, strand-like areas.

Finally, it should be reiterated that this and similar papers clearly demonstrate that we are in an era when by going out and searching for tuberculosis we are encountering problems which are new, requiring judgment of the highest order from the practising physician. It is distinctly another period in the fight against this insidious, treacherous and unpredictable disease.

—E.K.G.

VENEREAL PROPHYLAXIS

IN HIS autobiography, reviewed elsewhere in this issue, Hugh Young tells the intimate details of the way in which, for the first time in the history of warfare, a serious and effective attempt was made to control the incidence of venereal disease among the troops. It is a fascinating story of careful planning by a master mind backed by competent authority.

Young went to France with the first military contingent from the United States, six weeks after we entered the war. General Pershing and his staff were on board and from first to last the Commander-in-Chief gave his unstinted support to Young's proposals. Everyone knows the result. Venereal disease in the A. E. F. was held to a minimum throughout hostilities, an unparalleled record in military history.

Hugh Young has done many things of importance in his long and useful career but nothing

he has ever accomplished bears any comparison, for far-reaching benefit, to his skill and persistence in carrying out his ideas in the prevention of venereal disease. It furnished an example for the whole civilized world of what could be done by carefully applied scientific knowledge, properly enforced.

Now that we are again mobilizing a large force, regardless of whether war comes or not, it is to be devoutly hoped that the lessons of 1917 and 1918 will be clearly remembered and utilized. Anything less will be a disgraceful reflection on our national intelligence.

GILBERT COTTAM

SULFATHIAZOLE

JUST a year ago we published an editorial entitled "Sulfapyridine and Pneumonia"* calling attention to the value of sulfapyridine in the treatment of pneumonia, but concluding that this dye "is doubtless not the last word in chemotherapy for this infection." The reports of the use of another dye, sulfathiazole, in pneumococcic pneumonia, indicate that this drug is just as efficacious in the treatment of this infection and has distinct advantages.

According to reports, sulfathiazole is more rapidly absorbed and is more rapidly excreted than sulfapyridine, some 80 per cent of a single dose being excreted by the kidney in twenty-four hours. Its action on the pneumococcus *in vitro* and clinically, seems fully as great as that of sulfapyridine. Its rapid absorption and excretion doubtless account for the greater difficulty in obtaining a high concentration in the blood, but, clinically, a blood concentration of 5 mg. per cent seems sufficient for therapeutic results.

Sulfathiazole, too, is only about half as toxic as sulfapyridine. This is shown by the less frequent appearance of vomiting and malaise which is a distinct drawback to the use of sulfapyridine. Skin eruptions, however, in the form of a maculopapular eruption most prominent over the extremities is paradoxically more frequent with sulfapyridine. An eruption resembling erythema nodosum has been described in a few cases. One author has called attention to the danger of kidney damage from the intratubular recrystallization of the dye in the kidney. This must be of rather rare occurrence with the customary administration of the dye, for hematuria rarely occurs. This possibility, however, offers a warning against large or prolonged dosage and too little liquid in the diet.

The dosage of sulfathiazole is similar to that of sulfapyridine. Two grams can be given as an initial dose, and 1 gram every four hours for twenty-four hours, when the dose should be reduced and then stopped after five to seven days.

So startling have been the results from this use of sulfathiazole in pneumococcic pneumonia that the need for specific serum in conjunction has been cut to a minimum. As a matter of experience the administration of this dye has often interfered with typing and made specific serum administration impossible.

Sulfathiazole has proven itself the outstanding dye in the treatment of staphylococcic infections. Remarkable results in the treatment of staphylococcic septicemia have been reported. It has also proven itself of great value in urinary tract infections in which the staphylococcus Bacillus proteus, alpha hemolytic streptococci and Escherichia coli are present.

It is perhaps useless to warn against expecting the impossible from this valuable dye. Surgical principles should not be lost sight of and nursing and medical care are still important. The occasional occurrence of hematuria and anemia from the use of the dye affords a warning against its careless use.

It would not be too sanguine to predict that further advances in chemotherapy may be expected.

*Minn. Med. 23:124, (Feb.) 1940.

CONTRARY LAWS

Two contrary laws seem to be wrestling with each other nowadays; the one a law of blood and of death ever imagining new means of destruction and forcing nations to be constantly ready for the battlefield—the other, a law of peace, work and health, ever evolving new means of delivering man from the scourges which beset him. The one seeks violent conquests; the other, the relief of humanity. The latter places one human life above any victory; while the former would sacrifice hundreds of thousands of lives to the ambition of one. The law of which we are the instruments seeks, even in the midst of carnage, to cure the sanguinary ills of the law of war; the treatment inspired by our antiseptic methods may preserve thousands of soldiers. Which of these two laws will ultimately prevail, God alone knows. But we may assert that science will have tried, by obeying the law of humanity, to extend the frontiers of life.—LOUIS PASTEUR.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

THE CASE FOR THE DOCTORS

Any honest effort to economize, such as that set in motion in our state government, is applauded by physicians; but it may on occasion overstep the mark and require special adjustments.

Representatives of the Minnesota State Medical Association, while heartily favoring reductions in state expenditures wherever possible, are generally agreed that reductions, in the interest of economy, in the salaries of physicians serving in state institutions would seriously endanger the high standards of medical care always upheld in these institutions. Heads of the institutions, themselves, have become alarmed at reductions proposed last year and have vigorously protested.

Members of other professions have likewise been affected by the reductions and these also have made representations to the authorities. The result was the appointment of a Committee of the Legislature to investigate the situation and make recommendations. Testimony was presented by representatives of the physicians, lawyers, dentists, engineers, laboratory and social welfare workers. The case for the medical profession follows:

Course Is Long

To prepare a physician for practice a longer period of time is required, on the average, than for any other profession. As much or more preliminary college work is required of him before he enters medical school and the medical school course itself is as long or longer than that of any other professional school. A professional degree granted at the end of the course entitles virtually all other professional men to enter immediately upon the practice of their professions; but for the physician an additional year of internship, at the very least, must be fulfilled before he receives his degree and a license to practice medicine. For many men, furthermore, the degree of M.D. is only a stage in their preparation for practice. If the physician wishes to enter upon any specialty—and much of the practice in state institutions is specialized practice—he must have additional training and the minimum time required for such specialized study is almost standardized at the present time at three extra years beyond internship.

It is undoubtedly a fact, therefore, that the medical servants of the state have behind them a longer period of preparation at greater cost than any other group.

Responsibility Is Heavy

No doubt each of the professions could present a strong case for its own relative importance to the work of government but it is also a recognized fact, that, apart from training requirements, none carry with them the responsibility of life and death for the people under their care which the physician carries. Such responsibility weighs heavily on the man who carries it and added to it are irregular hours of work, an irregularity which does not to any great degree affect the other professions. There is also the fact demonstrated in all statistics about physicians that they enter late upon their life work and that it is terminated early. Often it is terminated prematurely by heart disease, that great affliction of physicians, or by early retirement made necessary by the strain and the exacting character of the work. Earnings should therefore, in justice, be adjusted to the length of the earning period.

Money Saved

The advantage to the state of a high quality of medical service is also worthy of careful attention. Aside from the benefit to the individual served there is a saving to the taxpayer that comes from the presence in the institution and

administrative divisions of well-trained men who keep abreast of scientific advancement. Thus the length of illness is reduced, proper regulations for segregation and admittance are maintained and expert advice is available in every phase of public health which in turn leads to reduction of illness and limitation of the institution populations cared for by the state.

In short, it was the opinion of the state association representative that both the public welfare and true economy call for employment of the highest type possible of medical service and that such service cannot be secured without reasonably adequate compensation for the physicians employed. Physicians as tax payers are well aware of the stress and strain of budget making and heartily endorse the desire of the administration to cut costs wherever possible but it was the reasoned opinion of the representative of the state association that both wisdom and economy call for employment in state institutions and departments of the highest type of medical service obtainable.

Pivotal Function

It is obvious, apart from the public interest, that the private welfare of the entire profession is involved in this matter. Standards of compensation for any section of physicians tend to be accepted as standards for all. Furthermore, in virtually all health and welfare programs in the state, whether in the public health units, state institutions or in federal agencies, the doctor is the essential factor. His work is the pivotal function and should be recognized as such even in the matter of remuneration for his work.

PUBLIC HEALTH PROGRAMS INITIATED BY PHYSICIANS

While women's clubs, welfare organizations, congressmen and students were debating health needs of America in terms of costly legislative reforms in 1940, members of the Minnesota State Medical Association were quietly forging ahead in a campaign to see that every child in Minnesota is protected against smallpox and diphtheria. Also they were laying the foundation for what may be an experiment of world-wide significance in the area control of tuberculosis in the human population.

These two projects, conceived and sponsored by the practicing physicians of the state, will cost the state government nothing except the funds already appropriated to the State Board of Health for vaccines and toxoid and, as the tuberculosis project gets under way, for laboratory examinations and treatment already provided in our State Division of Epidemiology and our system of sanatoria for the tuberculous. As they progress, they are certain to save the state untold amounts in money and in the lives of citizens.

The two projects, sponsored and pushed by committees of the Minnesota State Medical Association, were reported in detail at the December Council Meeting of the Association and they afford an apt illustration of what the physician means by a public health program for America, in contrast to the grandiose legislative proposals of non-medical reformers.

Attack Realistic

Both represent a realistic attack upon definite problems, by tested methods, at modest cost and within the existing organization of medical and public health services.

Community vaccination and immunization programs carried on by the physicians who practice in the community are not new in Minnesota. Heretofore, however, they have been carried on in a somewhat sporadic and unorganized fashion. In some counties they have been well organized and have been for some time a routine part of the health services of the community. In others, little consistent effort has been made to reach all of the children and particularly the preschool children in a community effort.

Immunization Campaign Launched

At the direction of the Council last year, and with the coöperation of the State Board of Health, a packet of approved material, including the latest information from authoritative sources on administration of procedures, and also practical information as to aid available from the State Board of Health, three approved plans for carrying on a community program and specimen organization material, such as consent cards and records, were assembled and sent to every medical society secretary and members of all contact committees of the state. Every society was urged to set in motion a medically sponsored plan for its own community if such a plan was not already in active operation.

The result was immediate. Some 35 counties and communities in the state were carrying on

immunization or vaccination programs or both —or were in process of organizing such plans before the end of 1940. More toxoid had been distributed by the Board than in any other year since the state made immunization material available to the physicians of the state and demands for toxoid and vaccine were in danger of exhausting the supply allowed for the purpose in the budget of the Board.

The program under state medical association sponsorship has only just got underway, of course, and further development may be expected during 1941. New impetus will be added, furthermore, by a new and valuable aid just made available through the efforts of the Board in coöperation with the state medical association.

Nursing Aid Available

This new aid takes the form of expert public health nursing service which can be secured to aid physicians in communities where no public health nurse is now employed to carry on the program.

Two nurses have now been made available by the Board for this purpose. Plans for the most effective and economical use of their services are now being drawn up by state medical and health department officials and will be sent direct to county medical society officers within a few days. According to preliminary plans, these nurses will be able to spend a period of approximately two weeks in the community aiding in preliminary organization and possibly in the actual administration of procedures depending upon the local need.

Experiment Started in Tuberculosis Control

The tuberculosis project has a spectacular quality which brought it headlines and front page space in the preliminary public announcement made just before the first of the year.

At the suggestion of the Council the Committee on Tuberculosis has worked out a unique plan for tuberculosis control in the human population of one Minnesota county. This plan is a copy with reservations of the methods used so successfully by veterinarians in eradication of tuberculosis among cattle. Meeker county was chosen for this experiment and if the experiment there is a success, it will be extended to other counties in the state with the ultimate objective of certifying Minnesota for human tuberculosis in much the same fashion as it is now certified for eradication of tuberculosis among cattle.

The success of the veterinarians has for some time constituted a challenge to experts in human tuberculosis. They have felt that here was the key, pending the possible discovery of an effective chemical attack on the disease, to the control of tuberculosis in the human family. But it remained for a committee of physicians to take the first bold experimental step in Minnesota. In getting the experiment under way, the physicians will not go to the legislature and ask for sweeping new authorities and appropriations. In fact, the initial small fund necessary to set administrative machinery at work has already been appropriated by the Council of the association. They will start with a conception new to human tuberculosis control, the area conception of control, and they will work quietly and modestly in one county, first making careful records, using education rather than coercion and, if the time comes when government assistance is needed to put a wider plan into effect, they will be ready with the experience and figures to guide it. This is a typical example of the ideals and methods by which physicians work to conquer disease and improve the health of the people.

Meeker County Chosen

Choice of Meeker county for the experiment is of historical as well as practical interest. It was in Meeker county in 1923 that the first tuberculin testing of cattle on a county-wide basis was undertaken in Minnesota.

Inspired by Dr. Charles E. Cotton, State Veterinarian, who, in 1892, participated in the first tests made on cattle in the United States, the Minnesota Live Stock Sanitary Board entered into a coöperative agreement with Meeker county for compulsory testing of cattle under the area plan in May of that year. A legal battle followed which gained international attention. It was waged and won by Meeker county farmers for the new method. The result was that, in 1925, Meeker county became the first in the world to earn the "Accredited" rating, which means that less than 0.5 per cent of cattle in the county reacted positively to the tuberculin test. By 1935 the entire state of Minnesota had achieved the accredited rating, a remarkable record in disease control.

Meeker county also figured in a pioneer survey

of tuberculosis in the human population carried on there and in four near-by counties by Dr. H. G. Lampson of the State Department of Health in 1912. This survey gave rise to a strong and continuing interest in the tuberculosis problem among physicians of the county and these physicians have now volunteered their services in this new attempt to conquer tuberculosis in Meeker county.

Lay Assistance Sought

Every resident of Meeker county will be offered the tuberculin skin test and all possible means of persuasion will be used to secure widespread acceptance of the invitation. The test will be repeated, systematically followed by careful examination of positive reactors. Assistance of volunteer and lay agencies will be sought to aid in financing x-ray examinations for those who need assistance and in the campaign of education that will be necessary for the success of the plan. Full advice and coöperation will be sought from the State Board of Health.

WISCONSIN EXPERIMENTS ABANDONED: NO DEMAND

It is of interest to students of sickness insurance plans in Minnesota to note that the experiment in voluntary sickness insurance carried on for several years by the Douglas County Medical Society in Superior, Wisconsin, has been discontinued.

Reasons for abandonment are significant: first, that there was an exceedingly small demand for the plan; second, the cost of acquiring subscribers was extremely high; third, the plan did not reach those in the low-income group for which it was designed; fourth, operating costs, which included the new "middle man," were high; fifth, premiums were too small to permit payment of minimum standard fees for the community to the physicians while at the same time paying overhead costs and creating a necessary reserve.

Discontinuance of the trial plan in Milwaukee has also been announced for much the same reasons; likewise, the effort started some time ago to develop a plan in Rock County.

Superior Subscribers Insufficient

The following account of the Superior undertaking and its experience is reprinted from the January issue of the *Wisconsin Medical Journal* because of its importance to all who are interested in new methods for distribution of medical services and especially to those who have reported a great public demand for sickness insurance.

After contribution of over $3,000 in unpaid services by the members of the Douglas County Medical Society, and a contribution, to assist in defraying administration costs, of over $1,100 in cash by the State Medical Society of Wisconsin, the Douglas County Medical Society voted by ballot at its November meeting to discontinue its participation in the experimental voluntary sickness insurance plan of the Coöperative Health Association. The trial plan for prepaid sickness care which assured subscribers to the plan complete and unlimited medical care from their family physician through the payment of monthly dues varying from $1.50 to $2.90 per month had been in service operation for eighteen months. Prior to that time, the Cooperative Health Association had spent a number of months attempting to secure a sufficient number of subscribers (150) to permit initial operation of the plan.

The full-time manager and the executive committee of the Coöperative Health Association, after twenty-four months of intensive sales effort, were able to secure only 295 subscribers to the plan.

The Advisory Committee on Voluntary Sickness Insurance recommended to the House of Delegates that the experimental sickness insurance plans both in Milwaukee and Superior be discontinued at the termination of existing agreements. The House of Delegates, however, following an extended discussion of the plan by the Superior delegate, Dr. T. J. O'Leary, amended the committee's recommendation to provide that continuance or discontinuance of the plan should be governed by the wishes of the local county medical society affected. It is to be remembered that this plan for prepaid medical care is one which was designed by the Coöperative Health Association and subjected to a laboratory trial by the Douglas County Medical Society in order that the members of the local county medical society might assist the profession in Wisconsin in finding, if possible, a plan for the prepayment of medical care which was socially desirable, financially sound, and one which would be possible of enlargement in Wisconsin without incorporating the many inherent dangers invariably found in plans of this type and in the compulsory sickness insurance plans found in European countries. Neither the local county medical society nor the State Medical Society felt, after eighteen months of first-hand study, that this plan held any promise of filling these standards.

The sincerity and coöperation of the Douglas County Medical Society and the State Medical Society were complimented by the Coöperative Health Association through the chairman of its executive committee, Mr. Oscar Cooley, when he wrote to the coöperative societies as follows:

We wish to state also that our relations with the Wisconsin Medical Society and with the twenty-one

doctors on our panel are of the very best. They are giving us their wholehearted coöperation. We regret to have to state this but the fact is that we have received better coöperation from the doctors than we have from the rank and file of consumers.

FOR YOUR PROTECTION

(Monthly Editorial Prepared by the Medical Advisory Committee)

With the ever expanding Defense Program well under way, more and more physicians and surgeons are being called into the Army. There is every indication that within the space of a few months a large number from the State of Minnesota will leave private practice, and enter military service. This means that the practice of the man called into Army service must be turned over to someone else. It may be to one of his associates in his community, or it may be to a Locum Tenens.

If you are called into Army service, and turn your practice over to another physician, certain precautions should be taken for your protection as well as that of the physician who assumes the responsibility of your practice. Have your records up to date, and freely accessible. This includes clinical records, laboratory records, and x-ray records. The physician who takes your place must be able to familiarize himself with the history and findings of the patients whose care he undertakes in your absence. If you leave fractures in the course of healing be very sure that an accurate x-ray record is made of the status of this fracture when you turn over your practice to your temporary successor. If you have cases in the hospital, surgical or medical, be sure that the chart and record in the hospital, as well as your own record in your office, are brought up to date with an accurate description of the patient's condition when you leave the case. Introduce, personally, your temporary successor to all patients who are under active treatment when you leave. Explain to the doctor who relieves you just what you are doing in each case, and just what you think should be done with future treatment. A little time and attention to these details will protect both you and the doctor who relieves you.

In addition to the above, be sure to notify the company who carries your physicians' liability insurance that you are leaving, and inform them who is taking over your practice. If your temporary successor is a young man who has just finished his internship, or fellowship, and who has not had physicians' liability insurance in the past, advise him to get it at once upon assuming your practice. You cannot be too careful about this. While all companies writing physicians' liability insurance issue policies providing for broad coverage, there are many technicalities, and it is of great importance to you and your temporary successor that the insurance company understand what is taking place, and that you and your successor are informed by the insurance company that you are both fully covered.

Your Medical Advisory Committee feels that the year 1941 should see a decline in malpractice suits in Minnesota, and your Committee believes that this will be the case. The Committee realizes, however, that responsibility rests upon the individual physician, and earnestly advises your attention to the details outlined above.

W. H. H.

COUNTY OFFICERS' MEETING

Saturday, February 22, is the date selected for the annual County Officers' Meeting; the place is the Saint Paul Hotel.

This meeting comes at a time when physicians all over the state are pre-occupied with defense problems, either as examiners for the draft, as members of appeal and induction boards, as reserve officers in the medical corps, or as non-eligible civilians upon whom will rest the burden, sometimes under severe handicap, of caring for the cilivian population at home. An important section of program time will therefore be devoted to these special military medical problems with Lt. Col. R. B. Hullsiek, Director, Medical Division of the Selective Service System, and Major F. S. Richardson, Surgeon of the First Military Area, as speakers.

Mr. John B. Pratt of Chicago, executive secretary of the National Physicians Committee for Extension of Medical Service, will be luncheon speaker. He is expected to give emphasis to social and political phases of the defense problem, particularly to the dangers to the traditional American system of practice that may lie in

hasty and ill-considered emergency defense measures.

Another program headliner is Justice Royal B. Stone who will talk to the medical officers about the obligations and responsibilities of the doctor in court and particularly about the work of the newly organized Committee on Medical Testimony to which Minnesota jurists have been invited to send suspicious cases for investigation and possible discipline.

Relief, new state legislation, new state association programs including the immunization program, the subject-of-the-month program and the Meeker county project of the Committee on Tuberculosis will be discussed during the day; also such special secretary's difficulties as securing attendance at meetings.

The conference will open at 8:30 a.m. with round table breakfasts for informal discussion. Expenses will be paid, as usual, for one representative from each county and district society to attend the meeting. All members are invited to be present, however, and all will be guests of the Association at the luncheon at 12:15.

NATIONAL CONFERENCE ON MEDICAL SERVICE

The National Conference on Medical Service, to be held Sunday, February 16, at the Palmer House in Chicago, originated in Minnesota as the Northwest Regional Conference and has grown from a small meeting of medical officials in neighboring states to an important nation-wide gathering. The conference is now held annually in Chicago on the Sunday preceding the Annual Congress on Medical Education and Licensure, scheduled for February 17 and 18. Minnesota speakers on the program are Dr. W. A. O'Brien, director of postgraduate medical education at the University of Minnesota, who will talk about the medical program of the Center for Continuation Study, and Dr. A. W. Adson of Rochester, and Mr. Walter Finke of Saint Paul, director of Minnesota's Division of Social Welfare, both of whom will discuss Minnesota's system for medical care of social security clients.

The program is as follows:

Morning Session

Registration

VOLUNTARY GROUP MEDICAL CARE PROGRAMS
(1) "The Second Year"—Mr. J. D. Laux, *Executive Director, Michigan Medical Service, Detroit, Michigan*
(2) "Why Are We Waiting?"—W. M. Hartman, M. D., *Macomb, Illinois*
(3) "What We Learned From the Wisconsin Experiments"—Mr. J. G. Crownhart, *Madison, Wisconsin*
(4) Question and Answer Period

MEDICAL PREPAREDNESS
(1) Irvin Abell, M. D., *Louisville, Kentucky*
(2) Morris Fishbein, M. D., *Chicago, Illinois*
(3) Colonel Leonard Rowntree, M. D., *Chief, Medical Division, Selective Service System, Washington, D. C.*
(4) Olin West, M. D., *Chicago, Illinois*
(5) Question and Answer Period, conducted by Roy W. Fouts, M. D., *Omaha, Nebraska*

NOON-DAY DINNER

Afternoon Session

President's Address—Forrest L. Loveland, M. D., *Topeka, Kansas*

Report of Nominating Committee; Annual Election of Officers; Selection of place for 1942 Meeting.

STATE MEDICAL SOCIETIES' POSTGRADUATE PROGRAMS
(1) "A Rural State's Program"—H. E. Snyder, M. D., *Winfield, Kansas*
(2) "As Carried On in Minnesota; A Coöperative Program"—W. A. O'Brien, M. D., *University of Minnesota Medical School, Minneapolis, Minnesota*
(3) "The Illinois Program"—Robert S. Berghoff, M. D., *Chicago, Illinois*
(4) Question and Answer Period

LEGISLATIVE PROBLEMS
(1) Federal—E. H. Cary, M. D., *Dallas, Texas*
(2) State—Mr. J. W. Holloway, Jr., *Chicago, Ill.*
(3) Question and Answer Period; Conductor to Be Announced

MEDICAL CARE FOR SOCIAL SECURITY CLIENTS
(1) "Minnesota's Plan for the Care of the Medically Indigent"—Mr. Walter F. Finke, *Director, Minnesota Division of Social Welfare of the Department of Social Security, St. Paul, Minnesota*
Alfred W. Adson, *Chairman, Medical Advisory Committee to the Minnesota Division of Social Welfare, Rochester, Minnesota*
(2) Mr. Walter G. Stumbo, *formerly Attorney for State Department of Social Welfare, Topeka, Kansas*
(3) Chas. H. Phifer, M. D., *Chairman, Illinois State Medical Society Advisory Committee to State Department of Welfare, Old Age Assistance Division, Chicago, Illinois*

"The Annual Meetings From the Standpoint of the Exhibitor"—Mr. C. H. Wantz, *President, Medical Exhibitors' Association, Convention Manager, General Electric X-Ray Corporation, Chicago, Illinois*

In Memoriam

Vincent John Hawkins

Dr. V. J. Hawkins, for fifty-three years a practitioner in Saint Paul, until his retirement in January, 1938, died December 15, 1940, at the age of eighty-five.

Dr. Hawkins was born October 3, 1855, in Conneaut, Ashtabula County, Ohio. He was of Irish descent. At the age of ten, he moved with his parents to Austin, Minnesota, traveling by oxcart and steamboat. This was immediately following the Civil War. His father had served from 1861 to 1865 with the Union Army.

Dr. Hawkins attended the Austin primary public schools and the Blooming Prairie high school. His medical degree was obtained at Rush Medical College, Chicago. The medical training at that time consisted of a 2-year course, but Dr. Hawkins took an extra year, graduating February 22, 1881. His medical diploma carries fourteen signatures, evidently of all his teachers. He also received a "Rush Medical College Certificate in Private Diagnosis" given by Joseph P. Ross, A.M., M.D. as well as a certificate from the Central Free Dispensary of West Chicago for a special course in eye and ear diseases.

Dr. Hawkins first practiced with his uncle, Dr. J. Palmer Johnson, in Blooming Prairie, Minnesota, from where he moved to Saint Paul in 1885. His medical license bears the date February 6, 1884. During his first year in Saint Paul he served on the staff of the City and County Hospital now known as the Ancker Hospital.

Dr. Hawkins' offices were in the Thompson Block at Isobel and South Wabasha Streets for fifty-three years. The outside door to the reception room was never closed or locked day or night. During the early days much of his practice was in the country and many trips by horse and buggy were made over muddy roads to patients in West Saint Paul and as far as the German settlement of Rosemount. Always fond of fine horses he owned five most of the time in the early days. He had some of them trained to gallop in harness by the fireman at a fire station near his house, and even at one time had a gong on his buggy. When he started to drive automobiles in 1910 all this was relegated to the past.

Dr. Hawkins was a general practitioner and performed some surgery. He had about 2,400 successful births to his credit. One of the obstetric cases in which he took great pride was a cesarian section performed September 14, 1889 on a midget seventeen years of age, three feet five inches tall and weighing fifty-eight pounds. Much of his surgery was emergency in character, performed at night in farm houses by the light of a kerosene lamp held outside the window to avoid ether explosion.

Dr. Hawkins was a member of the Ramsey County Medical Society from May 29, 1889 until he became an affiliate in 1928. He was a member of the Saint Paul Board of Library Directors from 1900 until 1905. He was a candidate for the State Senate in 1910. He was one of the first members of the Shekinah Lodge of the Masonic Order and a Past Grand Master of that lodge. He was also a member of the Woodmen of the World and medical examiner of that order for many years. He was a life member of the Riverview Commercial Club and assisted materially in the establishment of the West Side General Hospital. He was an Episcopalian and for many years served on the vestry of the Church of the Ascension as Senior Warden.

Dr. Hawkins had no hobbies but took great pleasure in the practice of medicine and attended medical meetings regularly.

Hugh H. Slocumb

Dr. Hugh H. Slocumb was born in Winona, Minnesota, November 22, 1882. He attended schools at Winona and also Shattuck Military Academy at Faribault, Minnesota.

Dr. Slocumb received his M.D. from the College of Medicine, University of Illinois in 1905, and practiced medicine at Ironwood, Michigan, for several years before moving to Plainview, Minnesota, where he was associated in practice with his brother, Dr. Jess Slocumb.

About 1914 Dr. Slocumb moved to Belgrade, Minnesota, where he enjoyed a good practice until he volunteered his services in 1917 during the World War. He married Hedwig Sund of Belgrade, June 1, 1918, and left the following month for France. Upon his return in 1919 he continued practice in Belgrade until 1929. On account of poor health he moved to California in 1929 and remained there until 1935, when he returned and located at Avon, Minnesota. He remained at Avon until his death, January 7, 1941, which was the result of a stroke suffered three years previous.

Dr. Slocumb is survived by his wife, one son and one daughter.

"For my part I am still unconvinced that the family doctor is an anachronism. I still want somebody to save me from unsuitable or excessive specialist advice; I need someone to coördinate the findings of specialists and discount them if necessary; and above all I want someone who is willing to talk to me, at length, about my migraine, my little boy's delinquencies, my wife's recent strangeness, my baby's inoculation, and my daughter's desire to marry a man with asthma."—LANCET. Copied by the *New York State Jour. of Med.*, (Jan.) 1940.

* * *

Nothing is more important at the present time than to continue and to intensify the campaign against tuberculosis and against syphilis, and I hope that no one will permit his attention to be swayed from the objectives we have in mind, because the fight against these diseases is more important at a time of crisis as a measure of national defense than it is in normal times.—FRANK C. BOUDREAU, M.D.

OF GENERAL INTEREST

Dr. M. J. Anderson is president of the Rochester Figure Skating Club.

* * *

Dr. and Mrs. John R. Paine of Minneapolis spent the holidays at Dr. Paine's home in Dallas, Texas.

* * *

Dr. and Mrs. F. M. McCarten of Stillwater are the parents of a daughter, Mary Ann, born December 15.

* * *

Dr. R. J. Ripple has been elected chief of staff at the Rice Memorial Hospital in Willmar.

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Dr. L. E. Sjostrom of Storden has been named coroner of Cottonwood County.

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Dr. and Mrs. E. James Brady of Minneapolis are the parents of a son, Dennis James, born December 15, 1940.

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Dr. A. Keller Doss, formerly a fellow in the Mayo Foundation at Rochester, is practicing in Fort Worth, Texas. He has offices in the Medical Arts Building.

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At a recent meeting of the American Statistical Association in Chicago, Dr. Joseph Berkson of Rochester was elected a Fellow of the organization.

* * *

Dr. D. W. Pollard of Minneapolis, acting superintendent of General Hospital for the past two years, has been made permanent superintendent of the hospital.

* * *

Dr. W. P. Olson has returned to Gaylord from California to take charge of the practice of his son, Dr. William P. Gaylord, while the latter is engaged in examining National Guardsmen.

* * *

Dr. Stuart W. Harrington of Rochester will deliver the annual Mayo lecture at Northwestern University Medical School, February 10. His subject will be "Diaphragmatic Hernia."

* * *

Dr. Simon D. Brimhall, formerly an associate in experimental surgery and pathology at the Mayo Clinic in Rochester, passed away January 10. Since his retirement in 1922 he had lived in Covert, Michigan.

* * *

Dr. Robert B. Tudor of Saint Paul has become a member of the Adams Hospital staff in Hibbing. He is a graduate of the University of Minnesota Medical School.

* * *

Dr. and Mrs. James H. Haines of Stillwater are grandparents for the second time, a son having been born to their daughter, Mrs. Lloyd A. Nelson of Minneapolis, January 3.

Dr. and Mrs. R. D. Thielen of Saint Michael recently moved into their new home, which also houses Dr. Thielen's offices. The building is of English cottage architecture, with exterior of stucco and stone.

* * *

Dr. W. S. Broker of Wadena is temporarily in charge of the Otter Tail County Sanatorium during the year's absence of Dr. L. J. Webster of Battle Lake, who has been called to active duty in the United States Army.

* * *

Dr. Peter Ward, administrator of Miller Hospital in Saint Paul was reëlected secretary of the Minnesota Hospital Service Association at a recent meeting. James McNee of Duluth is the new president.

* * *

Dr. Albert Fritsche was elected president of the staff at the Union Hospital in New Ulm, January 8. Other officers named are Dr. F. H. Dubbe, vice president; and Dr. C. A. Saffert, secretary.

* * *

Dr. J. L. Bollman of Rochester attended the national convention of Sigma Xi and a meeting of the American Association for the Advancement of Science in Philadelphia last month.

* * *

Dr. Harry A. Palmer of Blackduck married Miss Hulda T. Nyland of Minneapolis, December 21, 1940, in Minneapolis. They are at home in Blackduck, where Dr. Palmer is practicing.

* * *

Carl Drake, son of Dr. and Mrs. Carl B. Drake of Saint Paul, was a member of the Yale hockey team which played against the University of Minnesota six during the holidays.

* * *

Dr. William A. O'Brien, director of postgraduate medical education at the University of Minnesota, addressed a Farm and Home Week session in Saint Paul, January 23.

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Dr. Arthur C. Strachauer of Minneapolis recently returned from a two-weeks' hunting trip at King Ranch, Armstrong-Norias, Texas, where he bagged wild turkeys.

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A grant of $5,000 has been received by the University of Minnesota from the Carnegie Corporation of New York for continued support of investigations of viruses in relation to cell growth, being conducted under the direction of Dr. Robert G. Green.

* * *

Dr. Harry Hall of Minneapolis, orthopedist, has gone to England to be associated with the American Hospital in Britain, of which Dr. Wallace H. Cole of Saint Paul recently became director.

Dr. Charles B. Craft, National Cancer Research Institute Fellow at the University of Minnesota, addressed a women's group in Detroit Lakes, January 24, as the representative of the Minnesota State Medical Association.

* * *

Dr. H. L. Williams was in Boston recently to address members of the New England Otolaryngological Society. He was also in Philadelphia to attend a meeting of the American Laryngological, Rhinological and Otological Society.

* * *

Staff physicians at the Immanuel Hospital in Mankato have elected Dr. William Black as chief of staff; Dr. John A. Butzer, vice president, and Dr. F. W. Franchere of Lake Crystal, secretary. The hospital has purchased a shock-proof, portable x-ray machine.

* * *

Dr. Henry E. Michelson, Dr. Elmer M. Rusten, and Dr. Carl W. Laymon of Minneapolis, and Dr. John F. Madden and Dr. Francis W. Lynch of Saint Paul attended the annual meeting of the Chicago Dermatological Society, January 15.

* * *

Dr. Ruth E. Boynton, director of the Student Health Service at the University of Minnesota, was reëlected president of the American Student Health Service Association at its twenty-first annual meeting in Ann Arbor, Michigan, December 27 and 28.

* * *

Dr. Karl W. Anderson has been named head of the medical department of the Northwestern National Life Insurance Company, Minneapolis, succeeding the late Dr. Henry W. Cook. His appointment was effective as of January 1, 1941.

* * *

Dr. and Mrs. G. W. Clifford of Alexandria have gone to New Orleans where Dr. Clifford will take a six-weeks' postgraduate course in internal medicine at Tulane University Medical School. Dr. O. Braun of Minneapolis is in charge of his practice during his absence.

* * *

Dr. Willard Akins of the More Hospital staff in Eveleth, is the new city health officer in that city. He was appointed to that office January 1 by Mayor Richard C. Floyd who announced a rotation system for this position. He succeeds Dr. W. S. King, who continues as school health officer.

* * *

Dr. William Rademaker of Saint Paul has become associated in practice with Dr. H. W. Arndt in Detroit Lakes. Dr. Rademaker, a graduate of the University of Minnesota Medical School, was formerly with the Minnesota Division of Social Welfare. He will also have an office at Ogema.

* * *

Dr. T. F. Hammermeister was elected president of the staff of the Loretto Hospital in New Ulm at the annual meeting last month. Dr. Albert Fritsche was named vice president and Dr. F. H. Dubbe, secretary.

Dr. H. E. Mortensbak of Hanska read a paper, "Diseases of the Esophagus."

To safeguard patients from influenza, hospitals in Minneapolis last month ordered restrictions on visitors.

At the General Hospital, only the seriously ill were allowed visitors. Similar limitations were in force at the University Hospitals, while private hospitals were barring visitors with coughs or colds.

* * *

Dr. H. H. Kessler of Newark, New Jersey, orthopedist, will be one of the guest speakers at the eighty-eighth annual meeting of the Minnesota State Medical Association, to be held in Saint Paul, May 26, 27 and 28.

Dr. Kessler's subject will be "Rating of Disability."

* * *

Dr. R. A. Beise is the new chief of staff at St. Joseph's Hospital in Brainerd, being named to that position at a recent meeting. He succeeds Dr. J. A. Thabes, Sr.

Other officers named are: Dr. C. E. Carlson, Aitkin, vice chief, and Dr. V. E. Quanstrom, Brainerd, secretary-treasurer.

* * *

Dr. M. S. Henderson of Rochester was in New Orleans last month to attend meetings of the American Academy of Orthopædic Surgeons and the Committee on Fractures and Traumas of the American College of Surgeons. He also participated in giving the examinations of the American Board of Orthopædic Surgery.

* * *

Dr. F. W. Bachnik of the Adams Hospital staff in Hibbing, has gone to Chicago to begin a two-year fellowship in obstetrics and gynecology awarded him by the University of Chicago. He will do his graduate work at Lying-In Hospital operated by the University.

Dr. Bachnik plans to return to Hibbing to practice after completion of his fellowship. His wife and infant son will join him in Chicago in the spring.

* * *

Special courses of instruction in orthopedic nursing are being offered during the winter and spring quarters by the University of Minnesota for a limited group of public health and institutional nurses. The work is being offered with the assistance of the National Infantile Paralysis Foundation, Inc., and in collaboration with the Minnesota Department of Social Welfare, Division of Crippled Children, and the Minneapolis Curative Workshop.

* * *

Dr. Harry Wilmer of Minneapolis, former graduate student at the University of Minnesota who is now interning at Gorgas Hospital, Panama Canal Zone, is winner of the original research prize of Phi Delta Epsilon, national medical fraternity.

Dr. Wilmer was selected for the award at the fraternity's annual convention in Pittsburgh. He worked last year at the university with Dr. Richard E. Scammon. The findings of their research are to be incorporated in a book, "Human Growth and Developmental Anatomy."

Dr. J. S. Lundy of Rochester addressed a recent meeting of the Chicago Society of Anesthetists, and a meeting of the Englewood branch of the Chicago Medical Society. He also attended a meeting of the University of Michigan section of the American Chemical Society in Ann Arbor.

Dr. Walter C. Alvarez of Rochester addressed the Calumet Branch of the Chicago Medical Society, December 20, on "Abdominal Pain."

* * *

Dr. Henry E. Michelson of Minneapolis, director of the Division of Dermatology at the University of Minnesota Medical School, will address two state medical meetings in May.

He has been invited to present a paper at the Nebraska State Medical Association meeting in Lincoln, May 5 to 8, and also at the 1941 annual session of the South Dakota State Medical Association in Mitchell, May 19 and 20. At the latter meeting, he will present a clinic in addition to his paper.

* * *

Funeral services were held at Amery, Wisconsin, January 20, for Dr. John Andrew Regner, eighty-five, one of the last two members of the first class to be graduated from the University of Minnesota Medical School in 1889. Burial was in Lake City, Minnesota. He had practised in Superior, Wisconsin, and in Minneapolis, Wheaton and Cannon Falls, Minnesota.

With the death of Dr. Regner, who retired in 1931, Dr. Charles E. Dutton of Minneapolis is the only surviving member of the class.

* * *

First to hold the Harold Rypins Research assistantship in pediatrics at the University of Minnesota Medical School is Dr. Luigi Luzzatti.

The assistantship was established in honor of the late Dr. Rypins, who was a member of the faculty of the University Medical School for a number of years before going to New York to become secretary of the state board of medical examiners. The assistantship was established by a committee of Twin City physicians, aided by a group of interested and generous persons.

* * *

Dr. Oskar Diethelm of the Payne Whitney Psychiatric Clinic, New York City, and professor of psychiatry at Cornell University Medical College, addressed several meetings in Minneapolis early in January.

He spoke before the Minnesota Mental Hygiene Society on the subject, "The Aging Person"; and before the Minnesota Society of Neurology and Psychiatry on the topic, "A Historic Review of Psychiatric Treatment." He also addressed juniors and seniors in the University of Minnesota Medical School.

* * *

Dr. Martin Aune of Minneapolis has been appointed state surgeon of the Minnesota defense force with the rank of lieutenant colonel, according to an announcement by Col. F. G. Stutz, executive officer of the defense force. Dr. Aune has been assigned to the state staff with headquarters in Saint Paul.

A World War veteran, Dr. Aune served thirty years in the Minnesota National Guard. He retired from the National Guard service two years ago with the rank of major.

* * *

Life and work of interns at the General Hospital in Minneapolis is the subject of an eight-page photographic feature in the January 20 issue of *Life* magazine.

The University of Minnesota Medical School, the article points out, was the first to require internship for an M.D. degree.

Material for the story was obtained last fall when Dorothy Jane Larson, *Life* reporter, and Alfred Eisenstaedt, photographer, came to Minneapolis on the assignment.

* * *

Dr. Dean S. Fleming, Minneapolis epidemiologist, is scheduled to leave soon for England where he will become a staff member of a "siege hospital" being set up for the study of communicable diseases under war-time conditions. The hospital is a joint project of the American Red Cross and Harvard University.

Dr. Fleming, who is taking postgraduate work at Harvard University, is a graduate of the University of Minnesota Medical School. He has been an epidemiologist on the Minnesota State Board of Health.

The hospital to be erected in southwestern England has been prefabricated in the United States. It will be a 126-bed unit, consisting of twenty-two buildings.

* * *

A regional assembly of the Women's Field Army was conducted in Rochester, February 6 and 7, with the State Divisions of Minnesota, Iowa, North Dakota, South Dakota and Wisconsin participating.

Dr. A. W. Adson of Rochester coöperated in planning the program.

Speakers at the assembly dinner held at the Kahler Hotel, February 6, included C. C. Little, managing director of the American Society for the Control of Cancer, Inc., whose subject was "National Defense and Cancer Control," and Dr. W. A. O'Brien of Minneapolis, a director of the national society, and president of the Minnesota Society for the Control of Cancer.

* * *

Guest faculty members for the course in Uterine Bleeding at the Center for Continuation Study on the University of Minnesota campus, February 3 to 5, included George W. Bartelmez, professor of anatomy at the University of Chicago; Dr. Ralph A. Reis, assistant professor of obstetrics and gynecology at the Northwestern University Medical School, Chicago, and Dr. Robert Meyer, formerly director of the pathologic institute of the first women's clinic in Berlin and now associated with the University of Minnesota Medical School.

The course was limited to those with special training in pathology, or obstetrics and gynecology.

* * *

Dr. A. H. Borgerson of Sebeka has purchased the practice of Dr. M. G. Ericsson in Long Prairie and his interest in the Long Prairie Hospital and Clinic. Dr. Borgerson began his association with Drs. M. E.

Mosby and B. L. Gifford in the hospital and clinic, January 1.

Dr. Ericsson has moved to Cedar Falls, Iowa, where he has purchased the practice of a physician who is retiring.

Dr. Borgerson, a graduate of Northwestern University Medical School in Chicago, practiced at Hewitt, Minnesota, before going to Sebeka where he has practiced eight years. During this period he has been a member of the Wesley Hospital staff in Wadena.

* * *

A new degree, Master of Public Health, is to be conferred by the University of Minnesota through the Medical School, as the result of action taken at a recent meeting of the board of regents.

The degree replaces a certificate in public health, which previously has been issued to those completing the work. Candidates for the new degree are required to have prior professional training and a prior professional degree—that is, be graduate physicians, dentists, veterinarians, or graduate nurses who already hold a bachelor degree in public health nursing.

The program of studies leading to the degree will contain not less than forty-five credit hours of professional work in preventive medicine and public health.

* * *

Among Naval Reserve medical officers called to active duty are:

Dr. T. B. Magath of the Mayo Clinic staff in Rochester, assigned to Caribbean area for limited service. He has been stationed in Guantanamo Bay, naval base in Cuba.

Dr. James B. Vail of Henning, lieutenant, assigned to Second Marine Brigade, Fleet Marine Force, Marine Corps Base, San Diego, California.

Dr. W. McK. Craig and Dr. Waltman Walters of Rochester, for limited service.

Dr. H. W. Sybilrud, Bricelyn, who will serve as Lieutenant Commander of the United States Naval Reserve Medical Corps in the Second Marine Brigade. He reported for duty at San Diego, February 4.

* * *

Eighty ophthalmologists and otolaryngologists attended the Course in Ophthalmology at the University of Minnesota Center for Continuation Study, January 20-25. Of the eighty, all except four limit their practice to this field, and half of this group are members of special societies certified by the American Board.

Guest instructors included Dr. Ramon Castroviejo, instructor in ophthalmology at the Columbia University College of Physicians and Surgeons in New York; Dr. Albert D. Ruedemann, head of ophthalmology at Cleveland Clinic in Cleveland, Ohio; Dr. Derrick T. Vail, Jr., professor of ophthalmology at the University of Cincinnati College of Medicine; and Dr. Robert Von Der Heydt, associate professor of ophthalmology at Rush Medical College at the University of Chicago.

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Among guest members of the faculty for the Continuation Course in Hospital Administration conducted January 27-February 1 on the University of Minnesota campus were: Dr. Arthur C. Bachmeyer, director of University of Chicago Clinics; Nellie J. Gorgas, assistant to the director of University of Chicago Clinics; Dr. Malcolm T. MacEachern, associate director of American College of Surgeons; Joseph G. Norby, superintendent of Columbia Hospital in Milwaukee; C. Rufus Rorem, director, Commission on Hospital Service, American Hospital Association, Chicago; and Dr. Stanley J. Seeger, Chief of the Medical Staff of Columbia Hospital in Milwaukee.

A feature of the course was Trustee Day, January 31, when hospital trustees were guests.

* * *

A plaque was presented recently by the Minnesota Hospital Association to the Glenwood Community Hospital at Glenwood, winner of the contest for small hospitals held last May.

The presentation took place at a dinner in Glenwood at which hospitals in Benson, Clarkfield, Montevideo, Morris, Fergus Falls, Starbuck and Willmar as well as the Anoka State Hospital, were represented.

Ray Amberg of Minneapolis, association president, made the presentation. Dr. W. C. Rydburg, chief of staff of the hospital, described the staff organization.

Others who took part in the program included Dr. Walter Gardner, first vice president of the association, and Dr. A. F. Branton, executive secretary.

* * *

Several members of the University of Minnesota Medical Staff have completed motion pictures made by the Visual Education Service of the University of Minnesota.

A two reel, 16 mm. silent, colored film, entitled, "Hemorrhoidectomy; Dissection Method," was completed recently by Dr. Walter A. Fansler of Minneapolis. Pictures were taken by Clayton Wall.

Two movies have been made by Dr. Frank E. Burch of Minneapolis, both 16 mm. silent, colored. One is entitled, "Intracapsular Cataract Operation" and the other, "Extracapsular Cataract Extraction with Peripheral Iridectomy." Photographer for the latter was Lawrence Glesnes.

Robert A. Kissack, Jr., is director of the service and Paul Wendt, production manager.

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The next examination for appointments as commissioned officers in the Medical Department of the Navy will be held at all of the larger naval hospitals and at the Naval Medical Center in Washington, D. C., May 12 to 15, inclusive, it is announced by Rear Admiral Ross T. McIntire, the Surgeon General of the Navy.

Applicants for appointment as Assistant Surgeon, effective about two months from date of examinations, must request authorization to appear for examination before April 21. Applicants must be between the ages of twenty-one and thirty-one years and graduates of Class "A" medical schools. They must have had at least one year of intern training in an accredited hospital.

Additional information may be obtained by addressing the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Physicians who received advanced degrees from the University of Minnesota Medical School at the end of the 1940 fall quarter included: Drs. Wallace A. Merritt, John S. Bagwell, Jr., Alice G. Hildebrand, Lamont R. Schweiger and Donald MacLean Willson, all of Rochester, Masters of Science in Medicine.

Dr. Robert W. Brown of Fort Steilacoom, Washington, Master of Science in Neurology and Psychiatry. Dr. Calvin M. Kershner, Rochester, Master of Science in Ophthalmology. Dr. Henry H. Young, Rochester, Master of Science in Orthopedic Surgery. Dr. George C. Kimmel, Rochester, Master of Science in Pediatrics. Dr. Christopher Robert Dix, Rochester, Master of Science in Plastic Surgery.

Drs. Ercel A. Addington of Spokane, Washington, and John A. L. McCullough, Leo Axel Nash and Everett E. Seedorf, Rochester, Masters of Science in Radiology.

Drs. Morris T. Friedell, William B. Condon, Robert C. Derbyshire, Russell M. Jensen, James M. Leffel, Jr., Karl Chandler Randall, II, Carl P. Schlicke, Wendell S. Sharpe, Francis M. Thigpen, Richard P. Waggoner and Donald H. Wrork of Rochester, and Rochfort W. Kearney of Mankato, Masters of Science in Surgery.

Dr. Samuel Nesbitt of Rochester, Doctor of Philosophy in Medicine. Dr. Charles F. Code, Rochester, Doctor of Philosophy in Physiology.

* * *

Medical Reserve officers called to active duty in the United States Army within the last month include:

Captain Arthur Francis Dworak of Saint Paul, to Fort Bliss, Texas.

Captain Eugene John McCann, Minneapolis, assigned to Fort Snelling.

Dr. Daniel H. Autry, first lieutenant, Rochester; Dr. Francis C. Usher, captain, Rochester; Dr. Alvin John Meyer, captain, Lake City, all assigned to Camp Joseph T. Robinson, Arkansas.

Captain Frank Tracy Cavanor of Minneapolis, Captain Arthur M. Mulligan of Brainerd; First Lieutenants Leo James Conlin of Saint Paul, Harold J. Frank of New Prague, Albert T. Hays of Minneapolis, Morris Cable of Minneapolis, Jerome Scanlan of Saint Paul, Leslie Closson of Minneapolis and Louis Odessky of Saint Paul, all assigned to Carlisle Barracks, Pennsylvania.

Dr. Kinsey MacLeod Simonton, first lieutenant, Rochester; Dr. Carleton Schleuder Strathern, first lieutenant, Saint Peter; Dr. Paul Edgar Swanson, first lieutenant, Virginia; Dr. Alfred Uihlein, first lieutenant, Rochester; and Dr. Louis D. Vaughn, first lieutenant, Rochester, all assigned to Camp Grant, Rockford, Illinois.

Col. William D. Borden, M.C., Fort Snelling, has been transferred to Camp Eustis, Virginia.

Dr. Frederick A. Smith, first lieutenant, Rochester, to Army Medical Center, Washington, D. C.

Boyer's Semi-centennial of Practice*

"To be seventy years young is sometimes far more cheerful and hopeful than to be forty years old."—

OLIVER WENDELL HOLMES on the seventieth birthday of Julia Ward Howe, 1889.

It is not often in our community a physician practices his profession fifty years. Right now we have such a physician—Dr. Samuel Boyer. It is our pleasure, as his professional confrères, to do him honor at this item for his example in devotion to practice, his studiousness, tolerance and understanding. We are proud of a fellow practitioner who can reach his age and carry with him a well digested conception of new discoveries together with the sensible method of applying them. His analytical mind and his understanding of men's motives have helped make him successful in medicine and in politics. It was once said he poised the policies of a certain political party in the palm of his hand.

Doctor Boyer always conducts himself like a gentleman. He is motivated by a kindly spirit which pervades any conversation with him. His kindly smile and an occasional chuckle are in evidence of his keen sense of humor. A joke on himself is as good to him as a joke on others.

Love of the great outdoors has been and still is his pet diversion. In the early days he took long hikes in the woods, sometimes of several days' duration, and the wilderness was a real wilderness then, but he knew how to make himself at home there. The winters were severe and settlements were few and far between. Wild animals were plentiful and fishing was supreme. In town he always prided himself on having the finest of driving horses.

His quiet dignity and his deliberate manner together with his thoroughness and wise judgment give force to the position he may take on any issue. Usually he is very "firmly of the opinion," one way or the other.

His kinship with his son is exemplary and with that in generous measure for all younger men coming up in the profession. He believes in passing on to them as much as possible of the richness of experience of his own generation.

Today, the youngest older man in our beloved profession in Duluth is the man to whom we extend this recognition, Dr. Samuel Huntington Boyer, Sr.

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*The above tribute was read at the annual meeting of the staff of Saint Luke's Hospital, Duluth, Minnesota, held January 16, 1941.

At the same time a letter from the Board of Governors of the hospital was read indicating intention of the Board to place a bronze tablet in the hospital dedicated to Dr. Samuel H. Boyer on which will be inscribed all the names of the chiefs of staff of the hospital.

MEDICAL BROADCAST FOR FEBRUARY

The Minnesota State Medical Association broadcasts weekly at 11:00 o'clock every Saturday morning over Station WCCO, Minneapolis; Station WLB, University of Minnesota, and KDAL, Duluth.

Speaker: William A. O'Brien, M.D., Professor of Preventive Medicine and Public Health, Medical School, University of Minnesota.

The program for the month will be as follows:

February 1—Posture and Backache
February 8—Causes of Backache
February 15—Back Injury
February 22—Periodontia

AMERICAN COLLEGE OF SURGEONS TO HOLD SECTIONAL MEETING IN MINNEAPOLIS

March 10, 11 and 12 have been set as the dates for a Sectional Meeting of the American College of Surgeons in which the states of Minnesota, North and South Dakota, Iowa, Nebraska, Montana, Kansas and Wisconsin, and the province of Manitoba will participate. Headquarters will be at the Nicollet Hotel, in Minneapolis.

The sixteen approved hospitals of Minneapolis will provide an excellent clinical background for the College meeting. Many of them will hold operative and non-operative clinics each morning during the meeting, and will also hold demonstrations of hospital procedures for the hospital executives who will attend the Hospital Conference which will also be sponsored by the College during the same three days.

Distinguished surgeons from all parts of the country will address the scientific sessions and lead the conferences and panel discussions. Among them will be the president of the College, Dr. Evarts A. Graham, professor of surgery at Washington University Medical School, St. Louis. At the headquarters hotel there will be educational and scientific exhibits and showing of motion pictures portraying surgical and hospital procedures. A large public meeting on the subject of "Conservation of Health" on the evening of the third day will be the final feature.

The Committee on Local Arrangements consists of Dr. W. A. Hanson, Chairman; Dr. William E. Patterson, Vice Chairman; Dr. Myron O. Henry, Vice Chairman; and Dr. James M. Hayes, Secretary. The chairman of the sub-committee on clinics is Dr. L. Haynes Fowler; on exhibits, Dr. Frederick A. M. Olson; on the Meeting on Health Conservation, Dr. Thomas J. Kinsella; on program, Dr. James A. Johnson; on public relations and speaking assignments, Dr. Martin Nordland; on reception and entertainment, Dr. Theodore H. Sweetser; on speaking equipment and motion pictures, Dr. Arthur F. Bratrud; on transportation and hotels, Dr. H. E. Hoffert; and on ladies' entertainment, Mrs. James A. Johnson.

The medical profession at large, as well as hospital trustees, superintendents, pathologists, dietitians, and other hospital executive personnel, are invited to attend the sessions of the Sectional Meeting and the Hospital Conference, a sufficiently varied program having been arranged to interest members of the several professions which are concerned with service to the sick and injured.

Among the speakers at the evening sessions and the leaders and collaborators in panel discussions will be Dr. Frank E. Adair and Dr. John Scudder of New York City; Dr. I. Mims Gage of New Orleans; Dr. Edwin C. Hamblen of Durham, North Carolina; Dr. C. C. Higgins of Cleveland; Dr. Howard K. Gray of Rochester, Minnesota; Dr. David Cleveland and Dr. Roland S. Cron of Milwaukee; and Dr. Paul B. Magnuson, Dr. Warren H. Cole, Dr. C. B. Puestow, Dr. Michael L. Mason, Dr. Marshall Davison, and Dr. R. W. McNealy of Chicago.

Some of the subjects for panel discussions which have already been selected are, "Evaluation of Disability Following Fractures"; "Blood Transfusion"; "Carcinoma of the Colon and Rectum"; "Chemotherapy in Surgical Infections"; "Choice of Operation for Relief of Vesical Neck Obstruction"; "Complications in Surgery of the Biliary Tract"; "Craniocerebral Injuries"; "Endocrinology in Gynecology"; "Gastric Surgery for Non-cancerous Lesions"; "Hand Injuries"; "Indication for Cesarean Section"; "Proper Choice of Anesthetics with Indications and Contra-Indications"; "Thoracic Surgery"; "Thyroid Surgery"; "Treatment of Hernia by Surgery and by Injection"; "Use of Chemotherapy Before and After Urologic Surgery"; "Varicose Veins"; and "Cancer."

The clinical program will also include a wide range of subjects. Of especial interest will be the cancer clinic and the fracture clinic, and a presentation by the younger surgeons at one of the hospitals of surgical research that is in progress.

MINNESOTA STATE EXECUTIVE COMMITTEE,
Waltman Walters, M.D., Rochester
Secretary: James M. Hayes, M.D., Minneapolis
Counselors: William A. Coventry, M.D., Duluth
Harry P. Ritchie, M.D., Saint Paul
Owen H. Wangensteen, M.D., Minneapolis

DR. WHITE TO TALK AT UNIVERSITY

Dr. Paul D. White of the Massachusetts General Hospital, Boston, and the Harvard Medical School, will speak at the University of Minnesota Medical Science Amphitheater, February 28, at 8:15 p. m. His subject will be "Enlargement of the Heart."

Dr. White is also scheduled to give an address at Rochester, February 27.

MINNESOTA PATHOLOGICAL SOCIETY

When the Minnesota Pathological Society meets February 18, Dr. Frank C. Andrus will present a paper, "Gout Nephritis," and Dr. Henry E. Michelson, a paper, "Beck's Sarcoid."

VITAMIN K DISCOVERER TO SPEAK AT UNIVERSITY

Dr. Henrik Dam, associate professor of biochemistry at the University of Copenhagen and discoverer of vitamin K will lecture at the University of Minnesota under the auspices of the Medical School, February 24, at 8 p. m. in Room 15 of the Medical Science Building. His subject will be "Vitamin K—Biochemistry and Clinical Applications."

Dr. Dam will speak at Rochester, February 20.

GEORGE CHASE CHRISTIAN LECTURE

"Present Knowledge of Carcinogenesis," was the title of the lecture presented by Dr. F. Peyton Rous of the Rockefeller Institute for Medical Research, as the tenth annual George Chase Christian Lecture, February 5, at the University of Minnesota Medical School.

At a luncheon round-table on the day of the lecture, Dr. Rous discussed "Latent Neoplastic Changes and Conditional Tumors."

UNIVERSITY OF MINNESOTA INTERDEPARTMENTAL SEMINAR

The program for the Interdepartmental Seminar at the University of Minnesota Medical School to be presented Wednesday, February 26, at 8:00 p.m. in Eustis Amphitheatre, follows:

"The Kinetics of Gas Movement in Respiration with Particular Reference to Helium."—Drs. Robert B. Dean and M. B. Visscher.

"An Analysis of Twenty-seven Cases of Patent Ductus Arteriosus with Physiological Studies"—Dr. Ancel Keys, Laboratory of Physiological Hygiene, and Dr. M. J. Shapiro, Lymanhurst Clinic of the City of Minneapolis.

CLINICAL CONFERENCE OF MID-WESTERN RADIOLOGISTS

The fifth annual clinical conference of Mid-Western Radiologists will be conducted at Rochester, February 14 and 15. Following precedent established by previous conferences, members of the clinical, surgical and laboratory staffs of the Mayo Clinic will present the program. Scientific session will be conducted in Plummer Hall in the Mayo Clinic building.

Official headquarters will be the Kahler Hotel, where an informal banquet will be held Friday evening, February 14.

Dr. B. R. Kirklin of Rochester is local chairman of arrangements.

A special train will be operated between Chicago and Rochester for the conference.

VAN METER PRIZE AWARD

The American Association for the Study of Goiter again offers the Van Meter Prize Award of $300 and two honorable mentions for the best essay submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association which will be held at Boston, Massachusetts, May 26, 27, and 28, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy sent to the Corresponding Secretary, Dr. W. Blair Mosser, 133 Biddle Street, Kane, Pennsylvania, not later than April 1.

The committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays. Dr. Brien T. King of Seattle, Washington, received the Award for the year 1940 in recognition of his essay entitled "A New and Function-restoring Operation for Bilateral Abductor Cord Paralysis."

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association. This will not prevent its further publication, however, in any journal selected by the author.

BLUE EARTH COUNTY MEDICAL SOCIETY

The Blue Earth County Medical Society, in coöperation with the Blue Earth County Public Health Association, carried on an immunization campaign during the fall months of 1940.

During this period, 2,298 smallpox vaccinations and 1,999 diphtheria immunizations were administered. Rural Blue Earth County, as well as Mankato, was completely covered during the campaign, and an effort was made to give every child in the county the opportunity of this protection.

The Society intends to carry on a Mantoux testing campaign during the early months of 1941.

ST. LOUIS COUNTY MEDICAL SOCIETY

Dr. G. C. MacRae of Duluth was named president-elect of the Saint Louis County Medical Society at the organization's annual meeting last month. He will take office next year.

Dr. A. O. Swenson of Duluth, chosen president-elect last year, assumed the office of president held during the past year by Dr. T. L. Chapman.

Dr. S. H. Boyer, a practicing physician in Duluth for almost fifty years, was honored guest at the meeting.

Other officers named are: Dr. Clarence Jacobson of Chisholm, vice president; Dr. R. P. Buckley, Duluth, secretary-treasurer.

New delegates to the state medical meeting are Drs.

A. N. Collins and L. A. Barney of Duluth. Alternate delegates are Drs. M. H. Tibbetts and Mario Fischer, Duluth.

Delegates elected last year, who will continue to serve are: Drs. G. T. Ayres of Ely, H. E. Binet of Grand Rapids and J. R. Manley of Duluth. Alternate delegates are: Drs. P. G. Boman, C. M. Smith and P. S. Rudie, Duluth.

New committeemen are: Drs. P. G. Bowman and J. R. McNutt, Duluth, and Dr. A. Sinamark, Hibbing, economics; Dr. F. J. Hirschboeck, Duluth, advisory; Drs. Sinamark, W. E. Hatch and W. N. Graves, Duluth, judiciary.

Other committeemen, whose appointments hold over, are: Drs. C. O. Kohlbry and R. J. Moe, Duluth, advisory; Drs. J. K. Kuth, D. L. Tilderquist, E. L. Tuohy and R. S. Forbes of Duluth, O. W. Parker of Ely and Dr. Jacobson, judiciary; Drs. W. D. Coventry, C. H. Schroder, A. G. Athens of Duluth, Dr. Ayres and Dr. R. B. Bray, Biwabik, economics.

GOODHUE COUNTY MEDICAL SOCIETY

Dr. W. W. Liffrig of Goodhue is the newly elected president of the Goodhue County Medical Society. Other officers, chosen at a meeting last month in Red Wing, are: Dr. R. B. Graves of Red Wing, vice president; Dr. J. F. Brusegard, Red Wing, secretary-treasurer.

Dr. R. F. Hedin of Red Wing was chosen delegate to the state meeting of the Minnesota State Medical Association, and Dr. M. W. Smith was named alternate.

WASHINGTON COUNTY MEDICAL SOCIETY

Dr. Alexander McEwan of the staff of the Northern Pacific Hospital in St. Paul was guest speaker at the meeting of the Washington County Medical Society in Stillwater, January 14. He presented a paper on "Arthritis," discussing classification, etiology and treatment.

WOMAN'S AUXILIARY

MRS. M. A. NICHOLSON, Duluth, Minnesota, *President*
MRS. E. V. GOLTZ, 2259 Summit Avenue, Saint Paul, *Publicity Chairman*

Mrs. M. E. Nicholson of Duluth, Minnesota, president of the Auxiliary to the Minnesota State Medical Association, and Mrs. John J. Ryan, president-elect, and historian on the Board of the Auxiliary to the American Medical Association, attended the Board Meeting of the Auxiliary at the Palmer House in Chicago, Illinois, November 29, 1940.

Board members who arrived on Thursday were taken on a tour of the offices of the American Medical Association at 535 North Dearborn Street. This was of great interest to the many women attending.

The Board meeting was called to order at 9 A. M. and was in continuous session until six o'clock. At noon a luncheon was served and Mrs. V. E. Holcombe, national president, introduced the members of the Advisory Council of the Medical Society, Drs. Arthur W. Booth, chairman, James R. Bloss, Ralph A. Fenton, R. L. Sensenich. (Drs. West and William F. Braasch are the other members of the Council but were unable to attend the luncheon.) Dr. Booth read a report of the Advisory Council with their recommendations for the future actions of the Auxiliary. Dr. Nathan Van Etten, president of the American Medical Association, gave a talk that was both humorous and inspiring. Mrs. Holcombe introduced Mrs. Samuel Clark Red, organizer and first president of the Woman's Auxiliary, who gave a very inspiring talk on the growth and possibilities of the Auxiliary. She complimented the states on their great interest and urged them to continue to be a true auxiliary.

Mrs. H. E. Christenberry, circulation manager of the *Bulletin*, reported a mailing list of 1,276. The state reports were given, Mrs. M. E. Nicholson reporting for Minnesota. The Nominating Committee was elected, with Mrs. Ryan as elections chairman. Plans were discussed for the convention of the Auxiliary in Cleveland, Ohio, in June. Mrs. James Blake was president of the national Auxiliary when it met in Cleveland in 1934 and at that time there was no state Auxiliary. Ohio is the latest state to join Auxiliary ranks and Mrs. J. Edwin Purdy the Ohio president was introduced and reported tentative plans for the convention. Mrs. Ryan, as chairman of the special History Committee, recommended that the History, which is being compiled, be printed in 1942 when the Auxiliary will have been in existence twenty years and that the minutes and reports be bound every five years to serve as a future History of the organization. Mrs. M. E. Nicholson will report further matters of interest at the next Board meeting of the State Auxiliary.

Olmsted-Houston-Fillmore-Dodge Counties

The Olmsted-Houston-Fillmore-Dodge Auxiliary held a meeting January 8 in Rochester and Dr. F. M. Feldman, director of District 3, Minnesota Department of Public Health and deputy health officer of Rochester, spoke on the undesirable housing conditions of Rochester. Mrs. T. B. Magath, president, appointed the following chairmen for the entertainment next month when the regional meeting of the Women's Field Army to the Society for the Control of Cancer is held. The committee appointed includes Mrs. B. T. Horton, Mrs. C. W. Rucker, Mrs. L. P. Howell and Mrs. P. S. Hench. The public relations chairman, Mrs. Horton, also spoke at the meeting.

St. Louis County

St. Louis County Auxiliary held its monthly meeting January 14 at the home of the president, Mrs. W. N. Graves, Duluth. After the business meeting the members did Red Cross work. The big project for the St. Louis County Auxiliary this year is the furnishing of the patients' sitting room at the Nopeming Sanatorium.

PROCEEDINGS of the MINNESOTA ACADEMY OF MEDICINE

Meeting of November 13, 1940

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 13, 1940. Dinner was served at 7 o'clock and the meeting was called to order at 8 p.m. by the president, Dr. James Johnson.

There were thirty members present.

Minutes of the October meeting were read and approved as read.

The Secretary read a letter from Dr. L. C. Bacon, of Saint Paul, asking that his name be put on the Senior membership list. A motion was carried that this be accepted.

Dr. William F. Braasch read a memorial to Dr. C. B. Wright, and a motion was carried that it be accepted and spread on the minutes, and a copy sent to the family.

CHARLES BENJAMIN WRIGHT

1876-1940

The members of the Minnesota Academy of Medicine are largely familiar with the wide range of medical endeavor in which our late beloved colleague, Dr. C. B. Wright, participated. They also know of the long list of official positions which he so ably filled. There is no object in enumerating them again. However, these activities alone did not set him apart. It is his other qualities of mind and spirit which made him a physician of unusual attainments, outstanding in his contributions to the economic and scientific progress of American Medicine, and a citizen of exceptional value to society. It is true that he was classified in the medical registry as an internist, since he was a Fellow of the American College of Physicians and a Diplomat of the American Board of Internal Medicine, yet he was interested and well informed in many other phases of medicine. He took a personal interest in the medical and allied problems of many patients who had consulted him over a long period of years and he advised and directed their welfare much like the general practitioner of old. In many respects he represented the ideal practitioner of modern American Medicine.

His interest in the economic and general problems affecting the practice of medicine began with his participation in the affairs of the Hennepin County Medical Society. His intelligent approach to their problems and their solution was appreciated by his colleagues, who gave him official recognition and sought his counsel. His unusual intelligence in this field was recognized by Dr. Herman Johnson, who was not slow to draft him into the service of the Minnesota State Medical Association. A fine friendship arose between these two outstanding men which ended only with the untimely death of Dr. Johnson. Working together they were instrumental in developing medical reforms and in laying plans for the future which gave the Minnesota State Medical Association a predominant position in the legislative affairs of our state and which received national recognition as well.

Valuable as were his services to the State Medical Association, his influence in the solution of national problems involving medicine was even greater. His intelligent appraisal of the various problems confronting American Medicine and his peculiar genius for the solution of such problems soon became apparent to the members of the House of Delegates of the American Medical Association and they elected him to membership on the Board of Trustees. He was not long a member of this powerful body before he was made chairman of its Executive Committee, probably the most responsible position in the entire organization of the American Medical Association. There was no one in the land who had a clearer understanding of the many difficult problems which confronted the medical profession. His keen mind would quickly discern the crux of a problem and any solution which he volunteered was invariably sound and logical. It was generally recognized that he accepted these responsibilities in a most efficient manner. In fact, he devoted so much of his time and effort to the problems of organized medicine that he sacrificed his personal interests. Would that his devotion to the cause of medicine might act as an example to many who gain but do not give.

Those of us who enjoyed his friendship profited greatly. To be in his company was a privilege. His keen analysis of things, his kindly humor, his love of truth and of law and order, were a constant source of inspiration. He will long be remembered as a wise counselor in medical affairs in county, state and nation, as a representative of the ideal in the practice of medicine and for his unselfish endeavors in behalf of his fellow practitioners.

BE IT RESOLVED that a copy of this expression of our love and appreciation be sent to the members of his family with our deep sympathy.

W. F. Braasch
W. H. Condit

Dr. E. M. Hammes read a memorial to Dr. Arthur S. Hamilton, and a motion was carried that it be accepted and spread on the minutes, and a copy sent to the family.

ARTHUR STEPHEN HAMILTON

1872-1940

Dr. Arthur Stephen Hamilton died at his home in Minneapolis on June 2, 1940. He had been severely incapacitated for nearly five years from the residuals of a series of cerebral vascular accidents.

Doctor Hamilton was born at Wyoming, Iowa, November 28, 1872. He graduated from the University of Iowa and then transferred to the University of Penn-

sylvania for his medical training, receiving the M.D. degree from that institution in 1897. His course through the Medical School represented a period of considerable hardship due to financial stringency which imposed a limited diet upon him and necessitated extracurricular work to supplement his meager funds. The stimulation which he received as a student of Mills and Spiller was undoubtedly a potent factor in the choice of neurology and psychiatry as his specialty.

After receiving his medical degree, Hamilton became an assistant physician at the Independence State Hospital in Iowa and held that position until 1904. At Independence he became greatly interested in neuropathology and published numerous papers on the pathology of conditions which at that time had received very little attention from microscopists. At Independence he was associated with two other physicians who also were destined to advance our knowledge of neurology and psychiatry, Dr. Albert H. Barrott and Dr. Adolf Meyer. While at Independence he married Dr. Susanna P. Boyle, who was also a member of the State Hospital staff; there are no children of their union.

In 1904 Dr. Hamilton moved to Minneapolis, Minnesota, entering the practice of neurology and psychiatry, receiving an appointment as instructor in neuropathology at the University of Minnesota. He advanced through the academic ranks to a full professorship which he received in 1916. In 1912 he was made Director of the Division of Nervous and Mental Diseases and was Professor and Director until the onset of his terminal illness in 1935. Two extended study trips abroad gave him familiarity with clinical methods of Germany and England, especially the latter; these he applied in his practice and emphasized in his teaching.

Doctor Hamilton was elected to membership in the Minnesota Academy of Medicine and read his inaugural thesis on January 5, 1910, entitled "Paretic Conditions in the Aged." He served as its president from September, 1923, to September, 1924, and his presidential address was entitled, "Historical Survey of the Minnesota Academy of Medicine."

Doctor Hamilton served in 1918 and 1919 as Captain and Major in the U. S. Army during the World War.

Doctor Hamilton was considered by his students to be an unusually systematic and lucid teacher both in the lecture room and at the bedside. His breadth of knowledge, clear analytical thinking, careful technic, gentleness with patients and consideration for the younger colleagues' opinion constituted in him the nearly ideal combination for an advisor and preceptor of the more advanced students.

Though rather reserved and dignified, he was never austere or supercilious, but was approachable, friendly, and rarely ruffled. His appreciation of the social implications of neurology and psychiatry drew him into active participation in civic affairs so that he was frequently consulted on matters involving the welfare of the community and the state. Preferring the pursuits of practice, teaching and investigation he nevertheless was an active participant in numerous national and local societies; he was a past president of the Central Neuropsychiatric Association and former chairman of the Section on Nervous and Mental Diseases of the American Medical Association.

Minnesota and its environs have benefited from the presence of Arthur Hamilton. His many friends grieve over his passing.

J. C. McKinley, M.D.
E. M. Hammes, M.D.

Upon ballot, the following men were elected as candidates to Active membership in the Academy:

Max W. Alberts.....Saint Paul
Erling W. Hansen.....Minneapolis
Donald McCarthy.....Minneapolis
Archie H. Cardle.....Minneapolis
William Sadler.....Minneapolis

The scientific program followed.

HYPERTENSION AND SURGICAL DISEASE OF THE KIDNEY

William F. Braasch, M.D.
Rochester, Minnesota

Dr. Braasch read a paper on the above subject and showed several lantern slides.

Discussion

Dr. Arnold Schwyzer, Saint Paul: We surely want to thank Dr. Braasch for bringing this subject before our Society. It is a very valuable paper especially for the surgeon, inasmuch as, even in the presence of considerable hypertension, we can go ahead and operate with more assurance and an easier mind if an operation on the kidney appears imperative. Such a study, to be impressive and of real value, must be done on a very large amount of material which, of course, Dr. Braasch had at his command.

Dr. H. B. Zimmermann, Saint Paul: It would be interesting if Dr. Braasch would compare the statistics in this paper with another series of major surgical procedures done on individuals with high blood pressure but with no thought of reducing the blood pressure. I have seen a great many cases, for instance, of women with hypertension who were relieved for long periods of time following a hysterectomy for fibroid tumors.

About two years ago I did a major amputation on a man in his early forties for a peripheral vascular disease. He had a severe hypertention. Since his amputation, his pressure rarely goes over 140.

One of the best results I have ever had from a supradiaphragmatic splanchnic resection was in an individual where I had to abandon the operation before I had finished.

There is something mysterious about hypertension, and I am personally convinced that a major surgical procedure often does something to change these patients' mode of life in such a way as to favorably influence the hypertension.

Dr. John F. Noble, Saint Paul: We have had some opportunity to watch the response of hypertension to the removal of a diseased kidney and our clinical impression has hardly been favorable. One case in particular comes to mind. The patient was a girl in her teens who was suffering from severe hypertension which was at first thought to be essential in nature. After urologic examination, it was decided that the pyelogram on one side suggested a picture of pyelonephritis with contraction of the kidney. This was somewhat supported by the clinical history. In spite

of the fact that the preponderance of the clinical opinion favored the diagnosis of essential hypertension, the small kidney was removed. The histologic picture was that of an arteriosclerosis of the kidney with some evidence of a chronic pyelonephritis. There was a distinct reduction of blood pressure after the nephrectomy for a period of six to eight months, with corresponding clinical improvement. The hypertension recurred, however, and the patient went on to death in a period of less than two years due to a renal insufficiency on an arteriolosclerotic basis. I believe the temporary decrease in blood pressure was simply secondary to the surgical operation.

Long periods of freedom from hypertension have been reported, as pointed out by Dr. Zimmermann, to follow major surgical procedures entirely unrelated to the kidney. Our experience has been very limited, but we have been frankly skeptical of many of the reported cures of hypertension following nephrectomy. One cannot question the brilliance and importance of Goldblatt's work, but it is questionable whether his experimental material can be directly applied to the problem of human essential hypertension.

TUMORS SIMULATING CARCINOMA—HAND-SCHÜLLER-CHRISTIAN'S DISEASE

WILLIAM A. HANSON, M.D.

Minneapolis, Minnesota

These tumors which have been reported increasingly since they were first reported by Rayer in 1836, Hand in 1893, Schüller in 1916 and Christian in 1919 are of interest in all fields of medicine and dentistry. So intimately is this clinical entity related to xanthomatosis and the reticulo-endothelial system that a sharp line of demarcation cannot be established, and therefore these two will necessarily be included in the discussion. The importance of the reticulo-endothelial system may be ascertained in a textbook of hematology.

Hand-Schüller-Christian's disease is undoubtedly due to a disturbance of the cholesterol metabolism,[7] which view, however, is not completely accepted by the morbid anatomists who emphasize the primary inflammatory nature of the disease.[2] Some investigators believe a filterable virus may be a factor.[3]

Probably the greatest contribution and understanding of the disease was brought forth by Rowland in 1928.[7] He concluded that these tumors infiltrate the reticulo-endothelial system resulting from an infiltration of lipoids in excess in the body fluids and are an expression of the body's attempt to rid the body fluids of lipoids which cannot be properly excreted and therefore act as an irritant. The various lipoids, cholesterol, fatty acid esters, phosphatid lipoids, probably lipoid proteins, are concerned with the process, but the anisotropic esters of cholesterol have been most often observed and studied.[7]

Henschen[6] recognized seven clinical groups.

1. Cases with skeletal transformations, exophthalmos and diabetes insipidus (complete triad).
2. Cases with skeletal transformations and exophthalmos but without diabetes insipidus (incomplete triad A).
3. Cases with skeletal transformations and diabetes insipidus but without exophthalmos (incomplete triad B).
4. Cases with skeletal transformations but without exophthalmos and diabetes insipidus.
5. Cases with diabetes insipidus but without skeletal transformations.
6. Cases with disturbances of growth.
7. Cases of so-called xantho-sarcomatosis without skeletal transformations and without diabetes insipidus.

Etiology.—Probably hypercholesterinemia is the most fundamental cause of these xanthomatous lesions; however, such factors as trauma, inflammation and infection cannot be disregarded.[7]

The majority of the cases have been observed in children and relatively few after puberty or in middle or advanced age. The male sex is more often affected than the female. There is no race predilection or familial occurrence. It usually occurs as nodular discrete lesions in the slowly evolving adult forms and as a more diffuse process in the rapidly developing infantile cases. Apparently diet is not much of a factor although it may influence the condition in some cases where it has already manifested itself.

Pathology.—Hand-Schüller-Christian's disease may be regarded as a chronic disease. In this disease the lipoid containing lesions have a predilection for the dense connective tissue adjacent to the bones, especially the skull, and by pressure cause defects in the bones with sharp edges. They develop from the dura mater, periosteum and endosteum, filling the defects of the bone which they produce. They may also originate from the articular ligaments and protrude into the joint space.[3] They may be found in many different organs and tissues such as skin, mucous membrane, gums, palate, ribs, liver, spleen, spine, bones, tendons, peritendons, periarticular surfaces, etc. The spleen and liver may or may not be enlarged, and if enlarged they never reach the size which is observed in Gaucher's and Niemann-Pick's disease.[3] In the former in the parenchyma of the liver and spleen there are either no specific lesions or only small ones without diffuse general involvement.

The accumulation of cells filled with cholesterol esters has been observed also in many organs and structures and may be very minute or macroscopic in character.

The outstanding clinical features, diabetes insipidus and the exophthalmos, are the results of changes in the skull. In the cases with pulmonary fibrosis there may be respiratory difficulties with cyanosis and hypertrophy of the right heart.[2]

The lesions are variable in size and form with an abundance of protoplasm and dark staining nuclei, while in the fresh state the cells are sometimes loaded with fat droplets.[3] If the fat is dissolved out, the protoplasm becomes a fine areolar network with foamy or vacuolated appearance, therefore the foam cell. Due to the presence of giant cells, fibrocytes, eosinophilic leukocytes and round cells they have been considered inflammatory granulomas. These granulomas which

involve the bone may reach considerable size and be mistaken for a tumor. In contrast to real neoplasms, they do not correspond with hematogenous metastasis in their distribution and their lack of infiltrative and destructive character by avoiding vital tissues.[7] Also the xanthomatous nodule does not increase by multiplication of its cell element but by the addition of new cells. If considered from their relationship to the reticulo-endothelial system, they may be summed up from the following phenomena.[7] The constant presence of excess lipoid in the blood stream causes an irritation of the vessel walls; thus a perivascular infiltration takes place. At first, small round lymphocytes with little protoplasm appear; then by splitting of the vessel walls, a fusiform cell with an abundance of protoplasm develops, and owing to a fusion multinuclear xanthoma cells are formed. These cells all contain lipoid with a greater amount in the more mature cells. These cells may vary in size and form, but their nuclear structure is similar. They never show karyokinesis. The young cells are always in the center of the lesion near the blood vessel, and the older and more mature cells are at the periphery. The characteristic cells are not always observable in the lesions, and they may retrogress or recur after excision (Rowland). The lesions tend toward fibrotic involution, and in the process there is a resulting arrangement of wavy bands and whorls.[3] In the bones the defects are filled by dense connective tissue in which bone is formed by metaplasia, and the continuity of the bone may be restored.[3] Some cases resemble cystic osteofibrosis (Chiari). The lungs in some cases show fibrotic induration with a honey-combed appearance. Viet reports a case with a diffuse sclerosis of the glands of internal secretion. The xanthomatas may also undergo necrosis and calcification. Therefore with this varied pathology considerable difficulty may be encountered in making the diagnosis.

Symptoms.—The onset of the disease is insidious and periodic; it is usually far advanced before a physician is consulted. In children there has been a history of measles, scarlet fever, etc. Trauma probably plays a part. One of the earliest findings in children is an ulcerative gingivitis with loosening of the teeth, due to the destruction of the alveolar process of the jaw by the xanthomatous tissue.[7] The symptoms depend on the location of the disease, the extent of the lesions and the mechanical effects resulting from the pressure and bone destruction. Subjective symptoms may be slight, or there may be irritability, often tenderness and pain referred to the lesions which may be severe in the rapidly progressive cases.[3] Polyuria and polydipsia and protrusion of one or both eyes are the most outstanding symptoms.

The head may be deformed by soft subcutaneous swellings, or the defects may be felt in the skull. There may be deafness due to middle ear involvement. The triad of symptoms, defects of membranous bones, exophthalmos and diabetes, are due to xanthoma-like lesions in the skull. The lesions of the dura mater and the periosteum erode the bone and produce the defects. They affect the hypophysis, infundibulum and base of the brain and therefore lead to diabetes insipidus. They break into the orbits and produce a protrusion of the eyeballs. The exophthalmos may be extreme with or without optic nerve injury or choked disc. About 85 per cent of the cases have exophthalmos and diabetes insipidus. Arrest in growth is associated with diabetes insipidus, and in children anemia and cachexia are noted. In some cases there may be an unexplained fever. The skin may be a light yellow or brownish color. The lesions have been found in the face, upper half of the body and in the region of the buttocks in one-third of the cases. These yellowish nodules may appear and disappear. Children in the later stages develop respiratory difficulties due to the fibrosis of the lungs, and the x-ray findings may resemble a miliary metastasis. Due to the induration in the pulmonic fields, there is an increase of the resistance in the circulation with right cardiac hypertrophy and accentuation of the second pulmonic tone.[3]

Prognosis.—The progress of the disease is slow and irregular with intervals of improvement. The milder cases take a prolonged course. Death often occurs between the second and fourth years of life as a result of respiratory complications, cardiac insufficiency or severe anemia.[3] According to Rowland children in the sixth and seventh years suddenly become obese and exhibit the typical picture of dystrophia adiposogenitalia. The mild cases may extend to middle life, and in older individuals the findings may be accidental. The mortality is about 30 per cent in adults[10] which is more favorable than carcinoma, and several individuals have survived one and two decades with and without treatment.[5]

Laboratory Findings.—The daily amount of urine in the presence of diabetes insipidus various from four to fifteen liters, of low specific gravity, 1.001 to 1.004. Occasionally transient[1] glycosuria with low sugar tolerance is noted, but no albumen.[3]

The blood during the progressive stage of the disease may show a moderate to marked increase of the cholesterol content which may be as high as 397 mgm. per 100 c.c. of blood. Hoefer states that the total fatty acids are above normal. During remissions the lipoid content is within normal limits.[3]

In the severe cases the red blood cells may be below 1,000,000, while in the milder cases a moderate hypochromic anemia with a red blood count of 3,500,000 to 4,500,000 per cubic millimeter and a hemoglobin content of 55 per cent may be present. The while blood cells vary between 7,000 and 2,300 per cubic millimeter, while at times there may be an increase in the eosinophiles and monocytes.[3]

X-rays of the skull reveal sharply defined, irregularly shaped defects of the bones with geographical outlines and without reactive bone formations.[1] All parts of the skull may be involved. According to Christian the skull looks like a moth-eaten piece of cloth.[3] Other bones may also be involved.

Diagnosis.—1. One should be mindful of the disease if there are bony defects, especially in the cranial bones, polyuria, polydipsia, exophthalmos, loosening of the teeth, dwarfism and dystrophia adiposogenitalia.

2. Bone defects, especially of the cranium, which are sharply delimited with a map-like appearance, are probably the most important characteristics of the entity.

3. The large foam cells with abundance of protoplasm and small dark nuclei are generally characteristic of the disease.[1]

Therapy.—Dietary treatment may be mentioned such as a diet consisting chiefly of carbohydrates, with moderate amounts of proteins and very little fats.

The diabetes insipidus may be influenced favorably by pituitrin medication and insulin. Thyroid extract has been used without much effect and Sosman reports that some cases have shown improvement by healing of the defects of the bone from x-ray therapy.[5] Thus we have no specific or definite therapy.

Case Report

Mrs. H. L. G., white and fifty years of age, was seen by us August 12, 1926. She was referred on account of a tumor of the right breast which was discovered on examination. She had also complained of insomnia and at time diplopia, associated with dizziness, of six weeks' duration; generalized headaches at intervals with a "whistling" sensation in the ears, for the same period of time; dull pain over the precordium at times, not related to exercise, and of variable duration. A rather marked complaint was a low backache of varying degree with difficulty in stooping and standing. The backache had been present since childhood, increasing in recent years. She had difficulty turning in bed and also was uncomfortable lying in bed. Over-exercise aggravated her backache and produced difficulty in standing erect. She had a sensation in the top of her head which she described as loose bodies, especially when stooping or leaning over. Associated with this was a dull bizarre pain over the top of the cranium.

Family History.—The mother had died from carcinoma of the uterus. Two maternal aunts also had died of carcinoma of the uterus.

Past History.—The patient is said to have had sleeping sickness as a child. She also had scarlet fever as a child without complications, and influenza said to have been complicated by peritonitis.

She had had a hysterectomy and appendectomy in 1919, and a hemorrhoidectomy in 1920. Her history otherwise was essentially negative.

Physical Examination.—The patient measured five feet eight inches in height and weighed 185 pounds. The temperature was 98.6 F., pulse 84, and the blood pressure registered 165 systolic and 110 diastolic in mm. of mercury. Her skin was dry and scaly. Tenderness was elicited in the right subcostal area but no masses were felt. A small firm mass was noted in the upper outer quadrant of the right breast. The pelvis showed no masses, and there were a few external hemorrhoids on rectal examination. There was noted tenderness on palpation over the right sacro-iliac joint with apparently normal motions of the spine.

Laboratory Examination.—The urine was normal on several occasions. The hemoglobin was 75 per cent, with 5,248,000 red blood cells per cubic mm., and the white blood cells numbered 8,000 and 9,300 per cubic mm. with a normal differential count.

X-ray studies of the lumbar spine and pelvis revealed destruction of the intervertebral disc between the 4th and 5th lumbar bodies. The left sacro-iliac joint showed a pronounced increased density with an abundance of striations present believed to be an osteoblastic metastatic carcinoma. There were noted small sharply circumscribed areas of rarefraction which were also interpreted as metastatic carcinomas of the frontal and parietal areas of the skull.

The mass in the right breast was removed under gas anesthesia without difficulty and was fairly well encapsulated. No further exploration was deemed advisable. She made an uneventful convalescence. The mass grossly was rather firm and of uniform consistency. On microscopic sections the interpretation was metastatic carcinoma probably hypernephroma, and Grade IV carcinoma of the adeno type, primary undetermined.

In August, 1930, she was again seen for reëxamination, with the same findings as before, but now she also had some tenderness in the jaw. The pelvis, on x-ray examination, showed the process to have extended into the acetabulum, and the skull showed the defects to be smaller.

In May, 1932, when seen again, she had gained eight pounds in weight, and her blood pressure was 180 systolic and 110 diastolic; the pulse was 100 per minute. The right pupil was larger than the left. She complained of tenderness and pain over the right sacro-iliac joint radiating to the right lower quadrant of the abdomen, increased by activity. The spine on x-ray showed no appreciable change. One year later she informed us she had had attacks of an unexplained intermittent fever, as high as 103 F.

In July 1934, her condition and findings were similar to the previous examinations. Inasmuch as there was no change, a review of the sections was undertaken, and the masses of foam cells were discovered. The paraffin block was again sectioned and studied, the portion examined containing the characteristic foam cells. The interpretation of the skull and lumbar spine was Paget's disease. The blood cholesterol was 167 mgms. per 100 c.c.

On July 11, 1939, her examining physician informed us her condition was as follows: the attacks of dizziness were infrequent but very severe, came on suddenly and persisted for two to three days. To obtain relief she found it necessary to lie on the right side with her eyes closed, wearing dark glasses and having the shades drawn. Associated with the above, was considerable nausea. She would see four or five objects, and the room would go around and around. She had no deafness or tinnitus. During these attacks she could not turn to the left without increasing her complaints. Headaches over the entire skull had been observed also during the past year.

Physical examination revealed a blood pressure of 175 systolic and 100 diastolic, she had had a recent operation on the left breast, but the pathology was not known. The eyes, nose, throat, chest, heart and abdomen appeared normal. The examination of the ears revealed no definite disease. X-rays made of the mastoid, petrous bone, skull, lumbar spine, pelvis and femur were interpreted as Paget's disease.

Summary.—A general consideration of Hand-Schüller-Christian's disease has been reviewed with a presentation of a case with lymph node involvement which has been under observation for fifteen years without much change, and which had previously been diagnosed as carcinoma and Paget's disease. The flat bones of the skull, the lumbar spine and ilia showed involvement. The etiology of the disease is not definitely known nor is the treatment. This again emphasizes the importance of biopsy and the review microscopically of the tissues removed at operation.

Acknowledgment is made to Dr. E. T. Bell, of the

Department of Pathology, University of Minnesota, and to Dr. Norman Johnson, for their coöperation and aid in this case.

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Discussion

DR. S. E. SWEITZER, Minneapolis: If the surgeons do not care to talk about this, I have a word to say about this patient of Dr. Hanson. These cases are interesting to the surgeon, the ophthalmologist, the internist, and the dermatologist. It shows the difficulty of making a diagnosis from the slides. The condition is closely allied to reticulo-endotheliosis, and Drs. Winer, Cummings and I wrote up a case two or three years ago. We did a biopsy and found the first slide looked like xanthomatosis, and later slides showed reticulo-endotheliosis. There was no involvement of the bones of the skull, and no diabetes. The child kept getting worse and finally died. Autopsy showed reticulo-endotheliosis of the pelvic bones and of the spine. Sections showed reticulo-endotheliosis in some places and other sections showed Hand-Schüller-Christian's disease as shown tonight.

There is something to remember about this condition —that is, we do not know much about it. It is closely allied to endotheliosis and we don't know much about that either. The only thing we can do is, when we find a case, to report it and study it. Both Hand-Schüller-Christian's disease and reticulo-endotheliosis may be phases of the same fundamental disease and have the same background.

DR. HANSON: I should like to have Dr. Sweitzer's opinion regarding the disturbances of the reticulo-endothelial system with patients who manifest the yellowish xanthoma plaques of the skin; in other words, do they manifest general xanthomatous manifestations?

DR. SWEITZER: I have seen hundreds and hundreds of those yellowish plaques under the eyes, and not one of they had any of these other conditions.

* * *

The meeting adjourned.

A. G. SCHULZE, M.D., *Secretary.*

Tuberculosis mortality acts something like a social barometer, rising during wars, and rising highest in the countries most affected by the war. It is difficult to prophesy what the present war will mean in increased tuberculosis mortality in the belligerent countries, but we may be sure that it will be once more a true barometer of disturbed social conditions. Countries which are making the greatest efforts, which are keeping their industries keyed up to the highest pitch, working their men the longest hours and reducing standards of living to the lowest levels are bound to suffer severely.—FRANK C. BOUDREAU, M.D., *News Digest of the Milbank Memorial Fund,* (June) 1940.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

IT IS YOUR LIFE—Keep Healthy, Stay Young, Live Long. Max M. Rosenberg, M.D. Formerly in charge of Clinical Laboratory O. P. Department, Beth Israel Hospital, Clinical Assistant Internal Medicine, Beth Israel Hospital, Clinical Assistant Pediatrics, Gouverneur Hospital. 450 pages. Illus. Price, $2.50, cloth. New York: The Scholastic Press, 1940.

THE ENDOCRINE FUNCTION OF IODINE. William Thomas Salter, Assistant Professor of Medicine, Harvard Medical School, Associated Physician Thorndike Memorial Laboratory, Boston City Hospital. 351 pages. Illus. Price, $3.50, cloth. Cambridge, Mass.: Harvard University Press, 1940.

THE 1940 YEAR BOOK OF GENERAL MEDICINE. Edited by George F. Dick, M.D., J. Burns Amberson, Jr., M.D., George R. Minot, M.D., S.D., F.R.C.P., Edinburgh and London, William B. Castle, M.D., A.M., M.D., (Hon.) Utrecht, William D. Stroud, M.D., and George B. Eusterman, M.D. 934 pages. Illus. Price, $3.00, cloth. Chicago: Year Book Publishers, 1940.

CLINICAL PELLAGRA. Seale Harris, M.D., Professor Emeritus of Medicine, University of Alabama, Birmingham; assisted by Seale Harris, Jr., M.D., formerly Assistant Professor of Medicine, Vanderbilt University, Birmingham; foreword by E. V. McCollum, Ph.D., Sc.D., LL.D., Professor of Biochemistry, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md. 494 pages. Illus. Price, $7.00, cloth. St. Louis: C. V. Mosby Co., 1941.

STRANGE MALADY—The Story of Allergy. Warren T. Vaughan, M.D. 268 pages. Illus. Price, $3.00, cloth. New York: Doubleday, Doran & Co., 1941.

HUGH YOUNG; A SURGEON'S AUTOBIOGRAPHY. 554 pages. With over 100 drawings by William P. Didusch, and three color prints. Price $5.00, cloth. New York: Harcourt, Brace and Company, 1940.

Some ten years ago the author dictated for his children a brief story of his experiences as a boy on a Texas ranch, and also told them of those fighting men, their grandfathers. He states that after this purely personal document happened to come to the notice of Mr. and Mrs. Harcourt they gave him no rest thereafter until he began to write this autobiography. Then the question arose as to how much of his work as a urologist, on which he had spent most of his time and effort, should be included. His friends, as well as his publishers, advised him to tell the whole story; without it, important as it was, the picture would be incomplete and therefore untrue. Besides this, he argued, his work had been largely with afflictions about which

there was still much ignorance, among them some of the deadliest of diseases. Subjects that were once taboo are now freely discussed by the laity, so now was an opportunity to shed some useful light on them, which he decided to utilize. Chapter 6, 128 pages in length, captioned "Developing a Specialty," is devoted to this phase of his interesting career and is beautifully illustrated by drawings from the hand of William P. Didusch, the artist who has been responsible for the illustrations in the technical publications of the author over a period of years. This section of the book alone makes it unique among medical autobiographies.

The preceding chapters deal with the author's ancestry and childhood, his student years and those of starting to practice in Baltimore. A graduate of the University of Virginia he took some graduate work in Johns Hopkins and then secured an internship followed by a surgical residency in the Johns Hopkins Hospital. This was in the heyday of the Big Four, with whom he was thrown in close contact and his association with these well-known men affords him an opportunity to tell some delightful stories and give an intimate insight into their personalities. Osler and Halsted both had a keen sense of humor and were practical jokers. Perhaps this had its influence on the author, for the book teems with wit and light heartedness throughout. His earlier days were not easy, but he came of fighting stock and writes of his difficulties as easily and unconcernedly as with the restraint he applies to his successes.

His later years were full of action and interest. Happy in heart and in his daily life he never allowed himself to be enslaved by the problems or the demands of his professional work but gave freely of his time, thought and means to outside activities. He travelled, hunted and fished, learned languages, patronized art and music and through his professional contacts with people important in political life was able to influence the passage of public health measures in fields far removed from his own specialty. He was an early enthusiast in aviation.

With the outbreak of the World War and as it progressed he became increasingly incensed at Germany and felt strongly that we should prepare for war. He wrote articles on the necessity of military training in the *New York Times* and the *Baltimore Sun* during the winter of 1916-17 but saw no results, so he joined with a small group of professional and business men from Baltimore to present the matter in person to President Wilson, who listened to them without evidence of more than casual interest. Soon after our entry into the war the author went to Washington again and offered his services to the Surgeon General, who issued orders for him and three assistants to proceed to England at the earliest possible moment for special urological duty. How he complied with these orders constitutes one of the most amusing stories in the whole book. But this assignment led to the most far-reaching consequences imaginable: the institution of thorough-going measures for the prevention of venereal disease throughout the A.E.F.

At seventy Hugh Young can look back on a long life fraught with joy and usefulness. He concludes his delightful recital with these words: "Need I say more to show how much I have enjoyed the life I have led, or what a thrilling time I have had in my professional work? But there is still so much to do, so much to live for."

GILBERT COTTAM

A SURGEON'S LIFE; THE AUTOBIOGRAPHY OF J. M. T. FINNEY. J. M. T. Finney. 396 pages. Price, $3.15, cloth. New York: G. P. Putnam's Sons, 1940.

You will read every word, spellbound. You will not want any interruption when you read this book. Refreshingly stimulating and encouraging—just what you long for now—a personified human touch. A life with a goodly heritage. A race well won! Honors well deserved! Truly the author's lot has fallen in pleasant pastures.

Physicians, medical students, nurses, social workers, patients will want to read this book. The reviewer also whole-heartedly recommends its careful study and application by each member of the present-day medical schools' faculty admission committee members. This autobiography is a light unto the feet of him who aspires to make medicine his vocation.

LILLIAN L. NYE, M.D.

DO YOU WANT TO BECOME A DOCTOR? Morris Fishbein, M.D. 176 pages. Price $1.50. New York: Frederick A. Stokes Co., 1939.

Written for students considering the study of medicine, this book contains a brief discussion of present-day medical education with emphasis on the difficulties of modern curricula. Premedical requirements, costs of medical education and a brief description of each Class A medical school are included. Ten pages are devoted to a discussion of the internship. Special discussion is made of problems peculiar to the Jewish student and to the colored stunt. There is a brief discussion of the specialties, the accessory professions and the future of medicine. The book is brief, well organized and well written.

While presenting an excellent summary of the field covered and containing much valuable factual information, the impression is that for the serious student who may be in a real dilemma on choosing a profession the book doesn't quite get down to business.

CHAS. C. COOPER, M.D.

UNRESTING CELLS. R. W. Gerard, Associate Professor of Physiology, University of Chicago. 439 pp. Illustrated. Price, $3.00. New York: Harper and Brothers, 1940.

This is a most unusual book. During the past ten years knowledge of cell chemistry, cell membrane structure, enzyme nature and action, muscle action, chromosome nature has advanced in astounding fashion. It seems fantastic to suppose that knowledge here gained can be presented with detective-story interest. Gerard has done just that. Secrets of funda-

mental processes within the cell are being learned; cell physiology is no longer an uncharted domain in science. How enzymes do their work, how the chromosomes can multiply and direct cell structure, how the fertilized egg can develop varying cell types —these have been perennial mysteries. The author gives a perspective view of the present concepts on these and other subjects of medical interest: some relations of antibodies, enzymes, hormones, vitamins, of viruses and crystals; the processes of cellular oxidation and anabolism; body oxidases; high points of cellular membrane physiology. The book is brief, has an absorbing style, contains many diagrams well designed to gain clarity. It is highly recommended for the physician who desires knowledge of recent concepts on fundamental processes he sees in the life about him.

C. J. Potthoff, M.D.

THE COMPLEAT PEDIATRICIAN—PRACTICAL PEDIATRICS. Third Edition. Wilburt C. Davison, M.A., D.Sc., M.D., Professor of Pediatrics, Duke University School of Medicine, and Pediatrist, Duke Hospital. 256 Sections. Price, $3.75, cloth. Durham, N. C.: Duke University Press, 1940.

It is indeed a pleasure to again be able to present gleanings and impressions of Dr. Davison's splendid work. The author has admirably succeeded in presenting this third edition as a text of practical value in diagnosis and teaching, by emphasizing symptoms and signs as clues, rather than description: a wonderful step forward from the former method of teaching—mechanical memorization of textbook descriptions of disease.

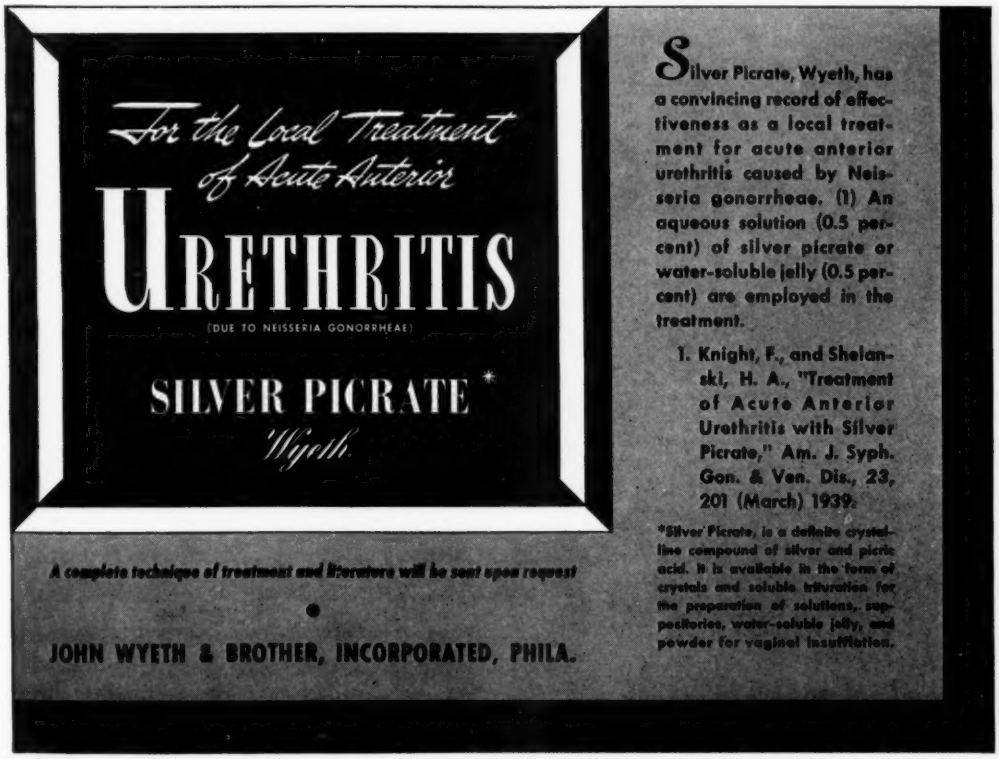
In this edition, 10,000 lines were changed because of the accumulation of additional pediatric information during the past three years. The author very generously expresses his thanks and appreciation to those who so ably rendered assistance. The reviewer notes with congratulations and pride the inclusion of Dr. A. T. S. Davison.

The author has listed the abbreviations used in the text under Instructions. A new paragraph heading, Unproven Remedies, appears. Prognosis is given prominence. This edition, more clearly by large type, simplifies the ready classification.

The reviewer suggests that a text, so very fine—with no equal in the field—receive more cautious proof reading and crictical pre-press scrutiny, particularly in the reference numbers and text content referable to the Index and Drug Sections; also a more extensive and a more detailed, explicit Drug and Prescriptions Chapter; a more complete laboratory presentation of newer, much used methods.

This text, together with each of the author's other editions, well deserves a place on every physician's desk. We shall await the appearance of the fourth edition in 1941.

Lillian L. Nye, M.D.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1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," Am. J. Syph. Gon. & Ven. Dis., 23, 201 (March) 1939.
*Silver Picrate, is a definite crystalline compound of silver and picric acid. It is available in the form of crystals and soluble trituration for the preparation of solutions, suppositories, water-soluble jelly, and powder for vaginal insufflation.

MANAGEMENT OF THE CARDIAC PATIENT, William G. Leaman, Jr., M.D., F.A.C.P. Assistant Professor of Medicine in Charge of Department of Cardiology, Woman's Medical College of Pennsylvania; Cardiologist Woman's College, Memorial, Northeastern Hospitals and Philadelphia Hospital for Contagious Diseases, etc. 705 pages. Illus. Price $6.50, cloth. Philadelphia: J. B. Lippincott Co., 1940.

Many books on heart disease have been published in the past few years. This one is distinguished by the fact that it deals mainly with treatment. The author discusses each major type of heart disease by first presenting a brief resumé of the pathology, diagnostic signs, and treatment. The treatment is further elaborated by the use of illustrative cases which are in turn discussed by the author. In addition to chapters on the classic types of heart disease such as rheumatic, hypertensive, coronary, etc., there are sections devoted to the heart in pregnancy, allergy and the heart, cardiac emergencies, diet and physiotherapy in the treatment of heart disease, and the use of social service. There is also a chapter on the electro-cardiogram.

The outstanding contribution of this book is the presentation of the treatment of cardiac disorders through the method of illustrative cases. This technique, together with the author's discussions, gives the reader a very practical insight. This book will be appreciated most by those physicians who wish a practical guide to the management of heart disease.

WM. D. COVENTRY, M.D.

INTRODUCTION TO BIOCHEMISTRY. W. R. Fearon, M.A., Sc.D., M.B., F.I.C., Dublin. 2nd edition. 475 pages. Illus. Price, $3.75. St. Louis: C. V. Mosby Co., 1940.

This book is very clearly written in the almost typical British outline form by which the vast amounts of information can be written in a rather small volume. The pure biochemical considerations are very complete and are interesting in that a considerable amount of emphasis is placed on the chemistry of inorganic matter in relation to general physiologic chemistry. The consideration of inorganic chemistry is usually minimized in most American biochemical texts. I feel, however, that the book lacks correlation with the physiologic processes as they occur in the body and for this reason it is quite difficult to follow the general trend of the text. The sequence is purely chemical.

This book should find wide acceptance among teachers and students of physiologic chemistry *per se*, but it lacks applicability to the needs for chemical information sought by the practicing physician and medical student.

J. J. GRABOW, M.D.

MINERAL METABOLISM. Alfred T. Shohl, M.D., Research Associate in Pediatrics, Harvard University. American Chemical Society Monograph Series. 384 pages. Price, $4.50, cloth. New York: Reinhold Publishing Corporation, 1939.

The two-fold purpose served by these monographs, to present the knowledge available in an intelligible, understandable form and to promote research through the context's well-digested survey of the up-to-date progress and through suggested avenues of investigation, is well fulfilled in this text. Every one interested in the field of mineral metabolism will profit by reading this presentation, both from the laboratory and clinical standpoints.

LILLIAN L. NYE, M.D.

TRICHOMONAS VAGINALIS IN THE MALE

(Continued from page 110)

In addition there were quite a few pus cells and also live trichomonas vaginalis. His wife had been examined by an excellent gynecologist, but no trichomonas vaginalis were found in her discharge. The urine was acid, sp. gr. 1030, very faint trace of albumin, a few r.b.c., an occasional w.b.c., full of mucus and calcium oxalate crystals, but no trichomonas vaginalis were found. I ordered a condom specimen which was brought three-quarters of an hour after coitus and after four days' continence. The specimen was not brought in a condom however but in a rubber finger because, as previously mentioned, he never ejaculates though he has orgasm, but about ten minutes later a thick mucoid ejaculation appears at the meatus, and it was this specimen brought in a rubber finger which I examined. The specimen showed very many lively spermatozoa. I never saw such lively spermatozoa and they acted as if something was chasing them. Even hours later and without any special precaution they were still found to be exceedingly lively. The specimen itself was much thicker than ordinary semen, but this did not in any way interfere with the motility of the spermatozoa. A careful search, moreover, did not reveal the presence of trichomonas vaginalis in this specimen. As the patient made no further visits after this examination, it was impossible to make any further studies of this interesting condition.

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